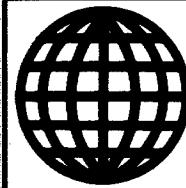


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29 APRIL 1988

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# ***JPRS Report—***

# **Soviet Union**

## ***Economic Affairs***

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# Soviet Union

## Economic Affairs

JPRS-UEA-88-014

## CONTENTS

29 APRIL 1988

### NATIONAL ECONOMY

#### ECONOMIC POLICY, ORGANIZATION, MANAGEMENT

Addition To Profit Norm Regulations Published [EKONOMICHESKAYA GAZETA, Mar 88]	1
Model Regulations On Income Distribution [EKONOMICHESKAYA GAZETA, No 10, Mar 88]	1
Economist Discusses Acceleration Versus Reduced Growth Rates [V. Cherkovets; EKONOMICHESKAYA GAZETA, No 10, Mar 88]	4
Finance Ministry Confirms Fund Use Regulations .....	7
Centralized Production, Scientific Fund [EKONOMICHESKAYA GAZETA, No 10, Mar 88]	7
Recommendations on Enterprise Reserve [EKONOMICHESKAYA GAZETA; No 10, Mar 88]	9

#### INVESTMENT, PRICES, BUDGET, FINANCE

Gosplan Official on Consumption, Savings, GNP Investment Funds [M. Sidorov; EKONOMICHESKAYA GAZETA, No 11, Mar 88]	10
---	----

#### INDUSTRIAL DEVELOPMENT, PERFORMANCE

Industry, Machinebuilding Require Normative, Price, Wage Changes [V. Kryukov; PLANOVYYE KHOZYAYSTVO, No 2, Feb 88]	13
---	----

### AGRICULTURE

#### POST HARVEST CROP PROCESSING

Prospects for Improvement in Post-Procurement Processing [A. Yaitskikh; PLANOVYYE KHOZYAYSTVO, No 11, Nov 87]	18
--	----

#### LIVESTOCK AND FEED PROCUREMENT

Developments in Meat Production Reviewed [A. V. Ignatenko; MYASNAYA INDUSTRIYA, Oct 87]	22
RSFSR Officials on New Approaches in Breeding, Production .....	25
Improvement of Cattle Breeds [G. Ogryzkin, A. Prudov, I. Dunin; SELSKOYE KHOZYAYSTVO ROSSI, Oct 87]	25
Intensive Cattle Breeding Methods [A. Yelistratov; SELSKOYE KHOZYAYSTVO ROSSI, Oct 87]	27
Shortcomings in Animal Husbandry [G. Nerubenko; SELSKOYE KHOZYAYSTVO ROSSI, Dec 87]	28
Food Industry Officials Review Dairy Production, Prospects [A. G. Yaitskikh; MOLOCHNAYA PROMYSLENOST, No 11, Nov 87]	30
Improvements in the Cattle Procurement Process Suggested [A. S. Myshelova; SELSKOYE KHOZYAYSTVO BELORUSSII, No 1, Jan 88]	34

#### MACHINERY, EQUIPMENT

Spare Parts Production, Deliveries Criticized .....	37
Extent of Problem Described [S. Vladimirov; SELSKAYA ZHIZN, 20 Dec 87]	37
Spare Parts Shortages in Kuban Region Discussed [Yu. Semenenko; SELSKAYA ZHIZN, 24 Dec 87]	38
Strict Control Established [SELSKAYA ZHIZN; 16 Mar 88]	39

## CONSTRUCTION

### POLICY, ORGANIZATION

- Gosplan Deputy Chairman on Capital Investment in Construction  
[V. Serov; *EKONOMICHESKAYA GAZETA*, Jan 88] ..... 40

## CONSUMER GOODS, DOMESTIC TRADE

### POLICY, ORGANIZATION

- Tsentrosoyuz Chief on Consumer Cooperative Restructuring  
[P. S. Fedirko; *SOVETSKAYA POTREBITELSKAYA KOOPERATSIYA*, No 1, Jan 88] ..... 43

### GOODS PRODUCTION, DISTRIBUTION

- Relationship of Population Budget to Trade Volume Viewed  
[R. Lokshin; *PLANOVYE KHOZYAYSTVO*, No 2, Feb 88] ..... 54

### HOUSING, PERSONAL SERVICES

- RSFSR Official on Changes in Housing Sector [O. Lobov; *SOVETSKAYA ROSSIYA*, 4 Mar 88] .... 61

## ENERGY

### ENERGY COMPLEX ORGANIZATION

- Atomic Power Industry Safety Regulations Passed  
/[SOBRANIYE POSTANOVLENIY PRAVITELSTVA SOYUZA SOVETSKIKH  
SOTSIALISTICHESKIKH RESPUBLIK, No 2, 1988] ..... 65

### FUELS

- Future of Coal Mining Examined [A. S. Burchakov; *UGOL*, No 1, Jan 88] ..... 70

### ELECTRIC POWER GENERATION

- Rumor of Malfunction at Lithuania's Ignalina Nuclear Plant Squelched  
[G. Afanasyeva; *SOVETSKAYA LITVA*, 5 Apr 88] ..... 77

## HUMAN RESOURCES

### LABOR

- Gosplan Official Critical of Losses in Labor Resources [I. Malmygin; *PRAVDA*, 1 Mar 88] ..... 78

## MACHINEBUILDING

### ORGANIZATION, PLANNING, MANAGEMENT

- Machine Tool Minister Discusses Industry Changes, Development  
[N. A. Panichev; *NOVOYE V ZHIZNI, NAUKE, TEKHNIKE: SERIYA TEKHNIKA*, No 2, 1988] . 80  
Construction, Investment Policies' Effect on Machinebuilding Viewed  
[V. Pchelkin, M. Ivanov, L. Merzon; *PLANOVYE KHOZYAYSTVO*, No 2, Feb 88] ..... 89

## TRANSPORTATION

### CIVIL AVIATION

- Minister Reports 1987 Results, 1988 Tasks  
[A. N. Volkov; *VOZDUSHNYY TRANSPORT*, 25 Feb 88] ..... 95

**RAIL SYSTEMS**

Transportation Construction 1988 Tasks Outlined [GUDOK, 27 Jan 88]	99
New Dispatching Center Begins Operation [A. Kapkov; GUDOK, 25 Feb 88]	102
'Price List' for Services Published [GUDOK, 4 Mar 88]	104

## ECONOMIC POLICY, ORGANIZATION, MANAGEMENT

### Addition To Profit Norm Regulations Published *18200110a Moscow EKONOMICHESKAYA GAZETA* in Russian No 10, Mar 88 p 4

[Article: "Additions To Standard Statute"; A translation of the regulations cited in No 50, Dec 87 appears in JPRS-UEA-88-006, 12 Feb 88 pp 1-4]

[Text] In connection with the publication of directive documents on further improvements in the economic mechanism, USSR Minfin [Ministry of Finances] has introduced the following additions to the "Standard Statute on the Normative Method for Profit Distribution During the 1988-1990 Period for Associations, Enterprises and Organizations Which Have Converted Over to Complete Cost Accounting and Self-Financing (Issue No. 50 of EKONOMICHESKAYA GAZETA for 1987).

The following paragraph is added to Point 5 of the Standard Statute:

"Unplanned expenditures (losses) do not include the expenses of contractual organizations caused by the non-fulfillment of plans for placing capabilities and installations in operation or the expenses of clients (at active enterprises) associated with the collection of payments for state budgetary income as a result of the untimely introduction into operations of production capabilities and installations and also with the compensation for the additional expenditures of a contractor caused by such untimely operations. These expenses are taken into account in the report on the financial results of economic activity, in Section I entitled "Financial Results From the Sale of Products, Work and Services."

The mentioned Standard Statute is supplemented by Point 19 as follows:

"Point 19. In those instances where the actual profit (profit from the sale of products, work and services and other financial results) of an enterprise, obtained during the year being reported upon, exceeds the total amount of planned profit employed when computing the economic norms, its distribution is carried out in the following manner:

a) the actual profit (profit from the sale of products, work and services and other financial results), within the limits of the profit employed in the economic norm computations, is distributed in conformity with the present Standard Statute; b) the profit mentioned in sub-point "a," obtained over and above the total amount of profit employed in the economic norm computations, in the amount of 70 percent, remains at the disposal of the enterprise and is added to the funds for economic stimulation in accordance with the approved norms, with the remaining 30 percent being added to the state budget.

The distribution of profit in the manner mentioned is carried out based upon budgetary computations in accordance with the annual reports and balances, commencing with 1988."

7026

### Model Regulations On Income Distribution *18200110b Moscow EKONOMICHESKAYA GAZETA* in Russian No 10, Mar 88 p 23

[Methodological materials: "Normative Distribution of Income"]

[Text] We are continuing the publication of methodological materials on complete cost accounting and self-financing (1). The "Standard Statute on the Normative Method for Distributing Income During the 1988-1990 Period For Associations, Enterprises and Organizations Which Have Converted Over to Cost Accounting and Self-Financing" is being printed in this issue. It has been approved by the Committee for Improvements in Administration, Planning and the Economic Mechanism and it has been ratified by USSR Minfin [Ministry of Finances].

The present standard statute was developed in conformity with the USSR law governing a state enterprise or organization (2) which employs a form of cost accounting and self-financing that is based upon a normative distribution of income, obtained following reimbursement from the earnings of material expenditures.

1. The income of an enterprise is formed by means of earnings from the sale of products, work and services in effective prices (exclusive of a turnover tax), with a deduction for material expenditures for the production and sale of products, work and services (3).
2. The planned and actual amount of income is determined based upon the sales volumes for products, work and services and the material expenditures for their production and sale.
3. The planned and actual income of enterprises is distributed in accordance with long-term norms approved by a higher organ, which are made available in a timely manner by the ministries (departments) to enterprises and which remain stable until the end of the five-year plan.
4. The following norms for income distribution are established for enterprises:
  - norm for payments into the productive funds;
  - norm for payments for labor resources (with the exception of enterprises which converted over to complete cost accounting and self-financing prior to 1 January 1988);

— norm for withholdings from computed income for the state budget (including the local budget). Computed income is understood to mean that income which is reduced by the total amount of payments into the productive funds and for labor resources and the total amount of interest payments for short-term credit;

— norm for withholdings from computed income for the centralized fund for the development of production, science and engineering and for the reserves of the ministry (department) and the GPO [gosudarstvennoye proizvodstvennoye obyedineniye; state production association] (4).

— norms for withholdings from cost accounting income (that is, the income remaining at the disposal of enterprises) for the fund for the development of production, science and engineering and for the fund for social development.

5. The norm for payments into the productive funds is established for enterprises as a rule in the amount of 2, 4, 6 or 8 percent of the average annual value of the fixed productive capital and standard working capital.

The norm for payments for labor resources is established in the amount of 300 rubles for one average table of organization and for individual regions with surplus labor — 200 rubles.

Some enterprises the planned income of which is insufficient for the formation of economic stimulation funds can be released by a higher organ from having to make payments for the production funds and labor resources or from one of these payments.

6. The budgetary computations for withholdings from income are carried out from income taken into account in conformity with its methodological planning.

Unplanned income, expenditures and losses, including the amounts obtained and paid for in the form of economic sanctions are included in the cost accounting income of enterprises. Discounts from wholesale prices in 1988 and 1989 for the mentioned unplanned expenditures (losses) are not included.

7. The distribution of an enterprise's income is carried out in the following manner:

a) a budgetary payment is made for the productive funds and labor resources in accordance with the established norms;

b) interest payments are made for short-term bank credits, including interest payments for the bank credit of foreign trade firms not possessing the rights of legal entities (with the exception of enterprises which converted over to complete cost accounting and self-financing prior to 1 January 1988).

c) withholdings are made for the state budget (including the local budget) (5) in accordance with the norms established for computed income;

d) withholdings are made for the ministry (department, GPO) for the formation of a centralized fund for the development of production, science and engineering and for reserves, in accordance with the norm established for computed income.

8. Income obtained on special communist work days is excluded from the actual income prior to its distribution for the purposes indicated in Point 7.

The additional income actually obtained by enterprises by means of incentive bonuses added on to the wholesale prices for new and highly effective products, which conform in terms of their parameters to the best foreign and domestic models, and for products bearing the State Badge of Quality, is included in the actual income and is generally used in accordance with the approved norms for income distribution. Budgetary withholdings from this income, in accordance with the quarterly and annual reports for 1988 and 1989, must not exceed 30 percent of the total amount of bonuses.

9. Income which remains at the disposal of enterprises constitutes the cost accounting income of a collective. By means of the cost accounting income, the following are formed in accordance with the established norms:

— the fund for the development of production, science and engineering;

— the fund for social development.

Following the formation of the mentioned funds, the wage fund is formed as the residue of a collective's cost accounting income.

The resources of a unified wage fund are used in the manner set forth in the standard statute governing the formation of a unified wage fund.

The actual cost accounting income, prior to its distribution for the mentioned purposes, increases (decreases) by the total amount of the unplanned income, expenditures and losses, including the amounts obtained and paid in the form of economic sanctions and reimbursement for losses and also for the amount of funds applied to the budget in the event of the deliberate covering of income or a reduction in income, as a result of applying them to production and turnover costs not associated with their expenditures.

10. The formation of the fund for the development of production, science and engineering and the fund for social development, by means of cost accounting income and in accordance with the established norms, is carried out after a portion of the cost accounting income has been used for:

— issuing bonuses to a labor collective based upon the results of the all-union and republic socialist competition;

— additional withholdings for the unified wage fund in connection with the complete carrying out of contractual delivery obligations;

— withholdings due to scientific organizations — developers and allied workers — from income obtained as a result of incentive bonuses applied to wholesale prices for new and highly effective products and for products bearing the State Badge of Quality, or from a reduction in the production costs for products (work, services) as a result of the use of new equipment decisions recommended by them. The mentioned withholdings are executed for work concerned with the creation, mastering and introduction of new equipment carried out in conformity with contracts concluded prior to the conversion of scientific organizations over to complete cost accounting and self-financing.

11. Enterprises can create a financial reserve by means of a portion of the cost accounting income of a collective, prior to its distribution in conformity with norms approved for the formation of an economic stimulation fund or by means of estimates for expenditure of the fund for social development and the fund for the development of production, science and engineering.

12. Budgetary computations for payments from income are carried out on a decentralized basis.

13. When determining the actual budgetary payments (payments for the productive funds and labor resources and withholdings from computed income), it should be borne in mind that prior to 1990 the total amount of bonuses for product deliveries for export purposes, within the established periods and in a high quality

manner, was transferred over to the unified wage fund by means of a reduction in budgetary payments in the manner established by the USSR Ministry of Finances.

14. Control over the observance of stability in the norms approved for enterprises is carried out in conformity with letter No. 153/990/223 dated 24 June 1987 of USSR Gosplan, USSR Ministry of Finances, USSR Gosbank and USSR Stroybank.

15. For computing the income obtained, use is made of Account 80 "Profit and Losses" (renamed Account 80 "Income"). The use of income is reflected in Account 81 "Use of Profit" (renamed Account 81 "Use of Income").

The earnings from the sale of products, work, services and production costs (turnover), particularly material expenditures, are taken into account in the appropriate bookkeeping accounts in the established manner.

At the end of the month, in Account 47, a determination is made as to the income obtained following reimbursement from the earnings of material expenditures and it is credited to Account 80 "Income."

The formation of the wage fund is reflected as a debit in Account 81 "Use of Income" in correspondence with the Credit Report 87 "Economic Stimulation Funds" (Sub-account "Wage Fund").

The computed wage amounts are taken into account in Credit Report 70 "Wage Computations" in correspondence with the debit of Account 87 (Sub-account "Wage Fund").

16. The present standard statute entered into force on 1 January 1988

17. When necessary, the ministries (departments), by agreement with the USSR Ministry of Finances, USSR Gosplan and the AUCCTU, can define the peculiarities involved in use of the present standard statute, while taking into account the branch's specific operations.

#### Appendix

Examples of Normative Distribution of Income Obtained Following Reimbursement From Earnings of Material Expenditures (in thousands of rubles)

	According To Plan	I	II	III	IV	V	VI
1. Earnings from sale of products, work and services	66980	66980	65980	67400	66980	66980	669890
2. Material expenditures (including amortization deductions, withholdings for social insurance, other monetary and other expenditures with the exception of wages)	32400	32400	29980	34400	32400	32400	32400
3. Overall total amount of income (c.1 - c.2)	34500	34580	36000	33000	34580	34580	34580
4. Payment for productive funds	2400	2800	2400	2400	2400	2400	2400
5. Payment for labor resources	1900	2000	1900	1900	1900	1900	1900
6. Percentages for short-term credit	50	50	50	50	50	50	50
7. Computed income (c.3 - c.4 - c.5 - c.6)	30230	29730	31650	28650	30230	30230	30230
8. Withholdings from computed income: a) for the budget (norm - 3“%”)	907	892	950	800	907	907	907

**Appendix**

**Examples of Normative Distribution of Income Obtained Following Reimbursement From Earnings of Material Expenditures (in thousands of rubles)**

	According To Plan	I	II	III	IV	V	VI
b) for the ministry (norm - 2"%)	605	595	633	573	605	605	605
9. Cost accounting income (c.7 - c.8)	28718	28243	30067	27217	28718	28718	28718
10. Bonuses based upon the results of the all-union socialist competition	-	-	50	-	-	-	-
11. Balance of unrealized income remaining at the disposal of an enterprise, expenditures and losses reimbursed by means of cost accounting income	-	-	-	-	+900	-900	-
12. Financial reserve of an enterprise	-	-	-	-	-	-	400
13. Cost accounting income used for forming the funds for economic stimulation and the wage fund	28718	28243	30017	27217	29618	27818	28318
14. Withholdings from computed income:							
a) for fund for the development of production, science and engineering (norm for withholdings — 12.5"%)	3500	3500	3752	3401	3702	3477	3540
b) for fund for social development (norm for withholdings — 3.8"%)	1091	1073	1141	1034	1125	1057	1076
15. Wage fund (surplus of cost accounting income c.13 - c.14a - c.14b)	24037	23640	25124	22781	24791	23284	23702

1. See **EKONOMICHESKAYA GAZETA** Nos. 50 and 52 for 1987, No. 4 for 1988.

2. Subsequently referred to as "enterprises."

3. When computing income, material expenditures also include amortization deductions, withholdings for social insurance, other monetary and other expenditures (excluding wage expenditures).

4. Centralized fund for the development of production, science and engineering and reserves can be formed in other administrative organs in conformity with existing legislation.

5. The system for crediting a portion of the income of enterprises of union subordination to local budgets is established by the USSR Ministry of Finances.

7026

**Economist Discusses Acceleration Versus Reduced Growth Rates**

*Moscow EKONOMICHESKAYA GAZETA* in Russian  
No 10, Mar 88 p 12

[Article by V. Cherkovets, professor, Moscow State University: "Radical Reform and Economic Growth Rates"]

[Text] The question of the kind of rates our economy needs from the standpoint of the problems confronting it and the existing potential is frequently replaced by the examination of such admittedly important problems as the methods for measuring its growth, the economic stimulation of the production of products needed by the national economy and the population, etc. At the same

time, the point at issue is the independent and most fundamental question of economic theory and practice—the acceleration concept.

First, the characterization of the stagnant situation that developed in our economy in the late seventies and early eighties as a precrisis situation incorporated the evaluation of growth rates of the most important economic indicators under the 9th, 10th, and 11th Five-Year Plans that tended to decline to an extremely low level unknown in the history of the USSR national economy. Second, one of the central tasks of the policy of accelerating our country's socioeconomic development is to secure a breakthrough in the dynamics of economic growth and in accelerating the rate of its development. Naturally acceleration does not essentially reduce entirely to increasing growth rates but also includes the attainment of a new quality of growth. The intensification of production, scientific-technological progress, structural restructuring of the national economy, and radical reform of the economic mechanism make it possible to formulate and solve the problem of dynamicity of economic growth rates without diminishing its significance.

Rates are the measure of the speed of movement. And understandably the acceleration of economic development also means the higher rate of this development. Acceleration without an increase in rates is a myth and scholasticism. As regards the new quality of growth, it not only does not essentially oppose the increase in rates but ultimately only this quality can be the means of more rapid economic and social development. The quality of growth is also reflected in the optimality of the actual magnitude of rates as well as in their structure.

Third, unless the Soviet economy's growth rates are increased, it is unrealistic to set the task of attaining and surpassing the world level of labor productivity. Unless

we resolve this problem, we will be unable to secure the highest volume of production of national income, of the consumption fund, and services on a per capita basis and to attain a qualitatively different level of well-being of the people than exists today. Of course, there is the practical difficulty of combining growth rates with improvements in quality and the raising of the technical level of production, especially at the enterprise. But this most important problem must be solved. After all, we are living in the face of ongoing scarcity of many products of productive as well as nonproductive consumption.

It has become a stereotype to cite the example of footwear production. Much footwear is produced in our country. If we judge by quantity, we produce more than is needed, but much is of poor quality and not of the mix that the customer needs. People ask: why, then, should we accelerate the rates? I do not dare doubt the correctness of such a formulation of the question. There is no need whatsoever for poor footwear. But there is an urgent need to organize the production of high-quality, attractive, and varied footwear in large quantities.

Naturally, we are speaking about a differentiated approach to every branch, every enterprise, and to every need and to every commodity that satisfies this need. The rates must obviously also be differentiated. What is more, the growth rates may change as a given need is satisfied.

The present state of our economy pushes the question of rates—taking all the above-indicated factors into account to the forefront. In any event, it is essential first of all to increase the rates of such macroeconomic indicators as the growth of national income, the final social product, the consumption fund, the volume of services in the nonproductive sphere and its individual branches, the growth of productivity of social labor, and subsequently real per capita income as well.

As regards major spheres of material production, this applies in particular to agricultural output—to animal husbandry as well as to crop production. There are considerable losses in the harvesting, shipment, and storage of agricultural produce. But even when this is taken into account, the rate problem here is still very acute. The difference in production growth rates in agriculture and industry in 70 years is enormous: industrial output during these years has grown 330-fold at the same time that agricultural output has increased only 5.5-fold.

In our opinion, if we objectively evaluate the situation in economic science, we have no scientifically substantiated theory of the rate of expanded reproduction. Factors influencing its particulars in specific historical periods are for the most part examined. In principle, the political economy of socialism has never acknowledged any of the theoretical versions of bourgeois political economy regarding the action of a certain law of diminishing growth rates in proportion to the growth of the

scale of reproduction. The premise of high and stable growth rates as a regularity of a socialist economy was generally recognized in all textbooks and scientific works.

The lay reader may ask: did political economy not notice or did it not want to notice the 15-year trend of declining rates in the USSR? Of course, science saw and discussed this, but it never considered, nor does it consider even now that this objective inevitability was the result of the socioeconomic system. Laws—both social and natural—are never manifested in pure form but may be realized in consequences that even seem to be the opposite of their essence.

Under socialism, the completeness with which laws are manifested in a specific situation depends in large measure on the corresponding unidirectionality of the activity of people and society in general, i.e., on the effectiveness of management and the system of planned economic management. Soviet political economy ascribed adverse results of economic development, in particular, the slackening of [growth] rates to the organization of the economic mechanism, to the insufficiently scientific level of planning and management, and in some cases to the direct ignoring of the demands of economic laws. Such laws as the law of systematic development, the law of distribution according to one's labor, and the law of value. Of course, bad management in the basic production link and the lack of well-formulated economic law also had their impact.

All this was common knowledge. The appropriate decisions were made but they were not sufficiently integrated and, most important, were not consistently and fully implemented.

At the same time, another view of things, which influenced economic policy in the area of rates and modern views of certain theorists and practical workers who contrast the rise of rates with the new quality of economic growth has made its way.

The 24th Party Congress, which in 1971 defined the principle task of the 9th Five-Year Plan as being to raise the material and cultural living standard of the Soviet people significantly, also indicated the way of realizing this objective—high rates of development of socialist production, its increased effectiveness, scientific-technological progress, and the accelerated growth of labor productivity. However, even before the end of the 9th Five-Year Plan, it became obvious that the rates for a number of basic indicators would be lower than under the 8th. What was the reaction to this? An idea, the essence of which consisted roughly in the following, "fluttered forth" from some economists, including those in academic circles, who were engaged in substantiating rates and proportions. With the transition to the intensive path of development, there is a natural lowering of growth rates. High rates disrupt proportionality and

make it possible to increase the effectiveness of production and improve product quality. In order to ensure balance in the economy, it was supposedly necessary to resort to the further lowering of rates. And that is what they did.

Lower rates were planned for the 10th Five-Year Plan. In the report at the 25th Party Congress, this was attributed to the difficulties of preceding years, to the task of improving balance and proportionality in the national economy, and to the task of creating optimal conditions for improving qualitative work indicators. Let us say directly that this statement, in both theory and practice, is essentially a justification of the period that we rightfully call the period of stagnation.

As we know, certain indicators in the 10th Five-Year Plan proved to be lower than projected and the 11th Five-Year Plan continued this trend.

Growth Rates by Five-Year Plans (in percent)

	8th 5-Yr Plan	9th 5-Yr Plan	10th 5-Yr Plan	11th 5-Yr Plan
National Income	45	28	21	17
Productivity of social labor	37	24	17	16.5
Industrial output	50	43	24	20
Gross agricultural output	23	13	9	5.5
Real per capita income	33	24	18	11

In the opinion of some economists such dynamics, with the more rapid growth of industry group 'B' under the 11th Five-Year Plan, should have secured the higher growth of consumption of the working people than in the past. But it happened that in 1982 the level of real per capita income stood still and for the five-year plan as a whole, increased by only 11 percent compared with the projected 16-18 percent and the actual 18 percent increase under the 10th Five-Year Plan.

Nevertheless, even today the balance and proportionality of the economy are contrasted with the rates of its development. And after all, the question of rates under present conditions cannot be solved by contrasting one against the other. Moreover, conclusions regarding the necessity of lowering the rate of economic development and of thereby improving the structure of the national economy are contradictory and deprive the acceleration concept of its most important support. Given such an approach, it is also necessary to recognize the baselessness of the negative evaluation of the "precrisis" state of our economy based on rates in the last 15 years. For example, in the interesting but largely debatable article by V. Selyunin entitled "Growth Rates on the Scale of

Consumption" (SOTSIALISTICHESKAYA INDUSTRIYA, 5 January 1988), the author directly calls for a policy of lowering the rate of development of the national economy for the sake of structural change. To this end, it is proposed to reduce the share of production of the means of production (since there is supposedly no need for the latter) and to increase the production of consumer goods. Which ones? In the majority of cases, it is clearly unnecessary to increase the volume of those already produced because of their poor quality and low technical level. And those that we need require new machinery.

Therefore, a differentiated approach to the means of production (Group 'A'). While the increase in production in the fuel and raw material branches of industry was scheduled to increase by 11-13 percent and for industry Group 'B' by 27 percent under the 12th Five-Year Plan, the increase in machine building and metalworking products should be 43 percent and the production of computing and calculating equipment should be 2.4-fold. The need is particularly great for machine tool, instrument making, electronics, and electrotechnical products that will develop even faster than machine building in general.

Of course, when we analyze the rates, we must take into account the influence of various factors that distort the evaluation of rates as well as distortions resulting from the use of different yardsticks.

At the February (1988) Plenum of the CPSU Central Committee, it was noted that if we purge economic growth indicators of the influence of such factors as high prices in the world oil market, and the unjustified forcing of the sale of alcoholic beverages, the result will be that for practically four five-year plans, we were unable to bring about an absolute increase in national income. In the early eighties, it even began to decline.

A frequently cited argument of this type is that the growth of national income is measured in value, monetary terms that may conceal a very wide material range of products, some of which consumers today do not need. The literature has long contained references to this "shortcoming" of national income as a yardstick of the dynamics of consumption. And this is indeed the case. But this "minus" is inherent to one degree or another in all value indicators and not just national income.

Naturally, it is impossible to get along without value indicators. There is no single economic measure of usefulness for heterogeneous products and needs. And if we introduce a conditional mathematical measure, it, too, like value, will obliterate the distinctions in the diversity of all use values, the integral aggregate of which comprises the most general summary result of social production—the aggregate social product or a part of it—the net social product (the material content of national income).

The gross national product indicator, which has already been incorporated in statistical practice, is also a value indicator. Here, too, the value assessment obliterates distinctions between heterogeneous products, even between the output of material production and the services of the nonproductive sphere. For this reason,

value indicators must have additional "accompaniment"—by the characterization of the material structure of output and by certain constraints in this regard.

As concerns national income, which is customarily used in our statistics to measure the growth of all material production, it is indeed very important here to make a true evaluation of the correlation of accumulation and consumption funds in it, to ascertain trends toward change in it and its dynamics, to analyze and decode the natural structure and composition of these funds. It is specifically such examination of national income that shows the objective need to accelerate economic growth rates in the present stage.

Thus, when we raise the question of economic growth rates, we are entirely able to differentiate two of its aspects. First, how best to measure the rates so as not to be in the thrall of the gross [output] illusion. Second, concerning the essence of the problem—whether we and our socialist economy must gain momentum today in the process of the growth of production, taking into account its structure, the degree of satisfaction of various needs or whether we should follow the recommendations and famous forecasts of one of the papers presented at the Club of Rome concerning "zero growth" and put on the brakes.

We recall that proposals by Club of Rome scientists (1972) to halt industrialization and the growth of production and to stabilize population growth were generated by pessimistic forecasts of "global catastrophe" by the middle of the 21st century, especially in connection with the depletion of natural resources as a result of the unplanned, uncontrolled development of the productive forces and technology. The authors of such a plan do not take into account the potential of scientific-technological progress, the planned system of national economic management in socialist countries and cooperation between socialist and capitalist states in resolving global world problems.

Nevertheless, considering the many circumstances and motivations in the present situation, it would appear that we have no alternative to the acceleration of development. Naturally, we refer not to the expansion of production in general but rather to the expansion of production of goods required to satisfy social needs while continually improving their quality, to the growth of productivity of social labor that makes it possible to produce the same mass of goods with a smaller work force, and to increasing the real per capita income of the growing population.

#### Finance Ministry Confirms Fund Use Regulations

**Centralized Production, Scientific Fund**  
*Moscow EKONOMICHESKAYA GAZETA* in Russian  
No 10, Mar 88 p 14

[Article "Centralized Reserves of Ministries"]

[Text] We continue the publication of guidelines on full cost accounting and self-financing which were approved by the Commission on the Improvement of Management,

Planning and the Economic Mechanism (see *EKONOMICHESKAYA GAZETA*, Nos 50 and 52, 1987; Nos 4, 6 and 7, 1988).

Published below are the "Model Statute on Forming and Using in 1988-1990 the Centralized Fund for the Development of Production, Science and Technology and Reserves of Ministries Whose Enterprises and Organizations Have Been Converted to Full Cost Accounting" and "Recommendations on the Procedure for Forming and Using in 1988-1990 the Financial Reserve for Associations, Enterprises and Organizations Converted to Full Cost Accounting and Self-Financing," which were approved by the USSR Ministry of Finance.

1. The centralized fund for the development of production and science and technology and reserves for the material incentive fund and the fund for social development are formed from payments to the ministry (department, state production association (GPO)<sup>1</sup> from the calculated profits (income) of associations, enterprises and organizations<sup>2</sup> and from amortization earmarked for the full restoration of fixed capital on the basis of stable established norms.

The norms governing enterprises' normative payments from calculated profits (income) to the centralized fund and reserves should be established on the following basis:

—payments from calculated profits (income) are made by enterprises according to a general norm that takes into account sums to be paid both the centralized fund for the development of production and science and technology and to the reserves;

—the norm governing payments to the centralized fund and reserves is established by the ministry (department, GPO) in agreement with the appropriate trade union committee;

—reserves earmarked for the fund for social development and the material incentive fund must not exceed 15 percent of the planned size of these funds for the ministry or department as a whole (including GPO reserves) with the exception of one-time rewards and material assistance previously paid from the minister's fund;

—payments to the centralized fund for the development of production and science and technology and to the reserves of the ministry (department, GPO) are made by all enterprises operating at a planned profit. The size of these payments must not exceed the size of payments to the state budget.

2. The centralized fund for the development of production and science and technology is used for the following purposes:

—to finance general branch and interbranch capital investments (including investments in new construction) and the development of technically lagging enterprises that lack their own resources. Enterprises may in special instances be allocated centralized financial resources for large-scale measures relating to technical retooling, reconstruction and the expansion of production. In such instances, the list of the corresponding enterprises and projects is approved in the state plan. Some of the fund may be used by the ministry (department) to finance centralized capital investments;

—to finance key research and development projects and to defray other general branch and interbranch expenditures;

—to compensate losses and to form the fund for the development of production and science and technology at enterprises operating at a marginal level of profitability or at a planned loss;

—to compensate the higher initial costs of producing new products;

—to make payments to the budget from the requester of new construction in the event of the failure to meet the planned deadline for commissioning capacities and projects and other economic sanctions levied against the ministry (department) in accordance with existing legislation and to transfer funds to the contract organization in the event new production capacities and projects are put into operation ahead of schedule;

—to maintain the directorate of an enterprise under construction in the project design stage and to subsequently compensate resources expended during that period (from expenditures indicated in summary estimated calculations of the cost of a construction project);

—to pay off bank loans and long-term credit extended directly to a ministry (department, GPO) and to pay interest on them;

—to fulfill obligations to banks stemming from guarantees issued by the ministry (department, GPO) vis-a-vis subordinate associations and enterprises;

—to form the reserve of the USSR State Committee for Science and Technology;

—to defray the cost of organizing and holding permanent science and technology exhibits;

—to maintain the administrative staff of a ministry (department, GPO);

—to raise the qualifications of managerial personnel and specialists;

—to finance the costs of subordinate higher, secondary and vocational-technical advanced training institutes and other educational institutions;

—to partially compensate the cost of training young specialists that are hired to work at newly activated enterprises;

—to render temporary financial assistance to enterprises and for other purposes.

The centralized fund for the development of production and science and technology can also be used to augment social development funds for financing the capital investments of enterprises whose collectives have particular need of bettering their housing conditions.

3. The reserve of the material incentive fund is used for the following purposes:

—to create material incentive funds for newly activated enterprises, facilities and capacities;

—to create material incentive funds at enterprises operating at a low profitability margin and at a planned loss;

—to increase the material incentive funds of enterprises that secure the increased output of new, highly effective equipment and new consumer goods;

—to pay bonuses for work relating to new equipment of a general branch and interbranch nature;

—to pay bonuses to ministry staff personnel under the established procedure;

—to pay one-time rewards to branch personnel for the performance of especially important work and assignments and to render them one-time material assistance, including that which was previously paid from the minister's fund;

—to pay bonuses based on the results of the All-Union Socialist Competition and to defray other costs associated with material incentives.

4. The reserve of the social development fund is used for the following purposes:

—to create the fund for social development of newly activated enterprises, facilities and capacities;

—to effect shared participation in the joint construction of dwelling houses, to pay for passes to sanatoria, rest homes, holiday hotels, tourism centers; to pay the cost of excursions and trips; to pay the cost of cultural, educational and physical culture measures for ministry administrative staff members according to the established norms;

—to increase the fund for social development of collectives that are winners in the all-union and branch socialist competitions;

—to create funds for social development at enterprises operating at a marginal profitability level or at a planned loss;

—to defray other costs associated with social development.

5. The centralized fund and reserves can be used to increase the material incentive fund of enterprises for the complete fulfillment of contractual delivery obligations and of enterprises securing the fulfillment of contractual obligations relating to the activation of production capacities, facilities, structures, dwelling houses and other social facilities.

6. Resources from the centralized fund and the reserves of the ministry (department, GPO) may be allocated to enterprises on a returnable basis, *inter alia* to settle accounts for output (work, services) if they lack the resources and the entitlement to credit.

7. Resources of the centralized fund for the development of production and science and technology and reserves in amounts corresponding to the ceilings set on subsidies assigned to ministries (departments, GPO) with progressive reductions for years of the five-year plan are the sources for defraying losses and for forming the economic incentive funds of enterprises operating at a marginal profitability level or at a planned loss.

8. Estimates of the expenditure of resources of the centralized fund for the development of production and science and technology and the reserves of the ministry (department) are coordinated with the appropriate trade union committee. Remainders of the fund and reserves are not subject to confiscation and are used the following year under the procedure established in the present Statute in accordance with the estimates.

9. Payments to the centralized fund for the development of production and science and technology and the reserves are made by enterprises by the deadline specified by the body forming the indicated fund and reserves.

10. Resources of the centralized fund for the development of production and science and technology and the reserves of the incentive funds are kept in the current account of the ministry (department, GPO).

11. The present Model Statute takes effect on 1 January 1988.

12. If necessary, ministries (departments) may with the consent of the USSR Ministry of Finance, USSR Gosplan and the All-Union Central Council of Trade Unions amend the present Model Statute to reflect the specifics of the work of the branch.

13. The Model Statute on the Formation and Use of the Centralized Fund for the Development of Production and Science and Technology and Reserves of Ministries Whose Associations and Enterprises Have Been Converted to Full Cost Accounting and Self-Financing, which was approved by a decision of the Commission on Improving Management, Planning and the Economic Mechanism dated 23 October 1986 (Protocol No 30) and approved by the USSR Ministry of Finance (No 179/2 (reported in Letter No 215 of the USSR Ministry of Finance dated 10 December 1986) is considered to have lost its effect.

#### Recommendations on Enterprise Reserve

Moscow EKONOMICHESKAYA GAZETA in Russian  
No 10, Mar 88 p 14

[ Article: "The Enterprise's Financial Reserve. Recommendations on the Procedure Governing Their Formation and Use in 1988-1990"]

1. The present Recommendations articulate the procedure governing the formation and use of the financial reserve by enterprises, associations and organizations<sup>3</sup> that are operating under the conditions of full cost accounting and self-financing.

2. The financial reserve is created:

—(a) for enterprises where the distribution of profits is normative—based on part of the planned and actual profit that remains at the disposal of the enterprise before it is directed in accordance with the approved norms for the formation of economic incentive funds or on the basis of estimates of the expenditure of funds for social development and the fund for the development of production and science and technology;

—(b) for enterprises where the distribution of income is normative—based on part of the planned and actual cost accounting income of the collective before it is distributed or on the basis of the estimate of the expenditure of the social development fund and the fund for the development of production and science and technology.

Payments to the financial reserve must not exceed five percent of profit (income) paid to the fund for social development and the fund for the development of production and science and technology.

3. The financial reserve is increased by the amount that the material incentive fund (unified wage fund) is reduced for the nonfulfillment of contractual delivery obligations.

4. Resources of the financial reserve may be used as supplementary expenditures on production and social development, on the development and introduction of new equipment, to augment own working capital and to make up for the insufficiency of working capital but may not be used to remunerate labor.

The resources of the financial reserve may be used to make supplementary payments to the material incentive fund (unified wage fund) for the total fulfillment of delivery obligations in accordance with concluded contracts.

5. Unused resources of the financial reserve remain at the disposal of the enterprise, are carried over to the following year, and may not be taken away from it.

6. The financial reserve is calculated by the enterprise on the basis of its performance for the quarter.

For bookkeeping purposes, payments to the enterprise's financial reserve are reflected as a credit in account 88 ("Special Funds") ("financial reserve" subaccount) in correspondence with account 81 ("Use of profit (income).")

7. The Model Statute on the Procedure Governing the Formation and Use of the Financial Reserve for Associations and Enterprises Converted to Full Cost Accounting, which was approved by a decision of the Commission on Improving Management, Planning and the Economic Mechanism dated 23 October 1986 (protocol No 30) and which was approved by the USSR Ministry of Finance on 30 October 1986 (No 179/1) (reported in letter No 215 of the USSR Ministry of Finance dated 10 December 1986) is considered to have lost its effect.

#### Footnotes

1. The centralized fund for the development of production and science and technology and reserves may also be formed in other management bodies in accordance with existing legislation.

2. Hereafter referred to as "enterprises."

3. Subsequently called "enterprises."

### INVESTMENT, PRICES, BUDGET, FINANCE

#### Gosplan Official on Consumption, Savings, GNP Investment Funds

18200111a Moscow EKONOMICHESKAYA GAZETA  
in Russian No 11, Mar 88 p 11

[Article by M. Sidorov, deputy director of Scientific Research Institute of Economics of USSR Gosplan and Doctor of Economic Sciences: "Consumption and Savings in National Income" (1)]]

[Text] The radical economic reform has intensified interest in the specific questions concerned with functioning of the economic mechanism at the level of an

enterprise or branch. These questions are being discussed actively in the press. And yet the questions concerned with substantiating the rates for economic growth, defining the proportions between the funds for reimbursement, consumption and savings and other very important national economic proportions have been relegated to a stage of secondary importance. True, in a number of instances the problems concerned with macro-economics are being handled in a sensational and revealing manner and this is generally inhibiting a calm and constructive examination of them. Thus attempts are being made to counter the rates of growth and structural improvements and doubt is being cast upon the possibility of accelerating the dynamics of national income under the conditions imposed by the technical modernization of production and restructuring of the administrative system.

National income is a source for growth in national well-being and in the development of production operations. Thus special urgency is being attached to truly evaluating what can be done in order to achieve an increase in national income and resources, in the interest of satisfying more completely the population's requirements for food, housing and goods for extended use. During the February Plenum of the CPSU Central Committee, mention was made of the fact that over the course of four five-year plans (provided market condition factors are eliminated: high prices for petroleum on the international market, an acceleration in the sale of alcoholic beverages), we failed to achieve an increase in absolute growth in national income and it even started to decline in the early 1900's. And only now is the economy beginning to grow on a healthy basis.

Under these conditions, it appears advisable to discuss the questions of macro-economics from the standpoint of practical implementation of modern economic policies. Indeed, in the final analysis the economic interests of individual collectives and the requirements of the state are realized through a definite system of national economic proportions, which secures the distribution of products produced for consumption and savings and unity in the development of inter-branch complexes and in the movement of material blessings and services and in the flow of money.

#### Possibilities for Redistribution

In addition to a value volume, national income also has a specific material and physical structure. The products and services employed in private consumption and also the material expenditures in branches of the non-production sphere comprise the consumption fund. Growth in productive and non-productive fixed capital, material working capital and reserves and supplies serve to define the savings fund. The ratio between the funds is a most important national economic proportion. It defines to a substantial degree the standard of living. Under the conditions imposed by a stable ratio between the savings and consumption funds, higher rates of growth in

national income lead to an increase in the standard of living and to improved national well-being. In order to prevent a decline in the standard of living for each individual, the consumption fund must increase at a rate that is no lower than the rate of population growth and recently this has been approximately one percent annually.

Some economic executives have proposed accelerated growth in the standard of living through a change in the ratio between consumption and savings. But the redistribution of resources from the savings fund into the consumption fund, for the purpose of raising national well-being, can be carried out only on the basis of increased effectiveness in production and capital investments, that is, to the exclusion of damage to the continuous process of reproduction. Having sharply reduced savings today, we will be able tomorrow not only to reduce the production of the means of production but also to lower the standard of living already achieved. Moreover, such reproduction, even if we are diverted from the problem of product substitution, is possible only in extremely limited amounts. Thus the amount of national income used in 1986 amounted to 576 billion rubles, including the consumption fund — 427.6 and the savings fund — 148.4 billion rubles (74.2 and 25.8 percent). It must also be borne in mind that the savings fund has a direct effect on growth in well-being. Indeed, it includes growth in fixed non-productive capital — housing, hospitals, schools and so forth. The proportion of national income used for satisfying the population's requirements amounts to 80 percent. The remaining 20 percent is used for increasing the amounts of fixed productive capital, material working capital, reserves and supplies. That is, the question regarding the savings fund must necessarily be resolved while taking into account its structure.

Everyone is aware that a definite portion of the income in a family budget is used for acquiring goods of extended use. When forming the state plan, a stable volume of resources must be employed for expansion and production modernization. This is the ABC's of the reproduction process. A reduction in the proportion of the savings fund constitutes an extremely limited and short-term reserve for raising consumption. A chief concern here is that of increasing the volume of national income, a portion of which is the consumption fund.

#### On the Effect of Prices

In examining the proportion between savings and consumption, we must not ignore the price factor. Quite often the opinion is expressed that a cost evaluation of the consumption fund is artificially raised by the existing price system. At first glance, such a conclusion appears justified. The retail prices for consumer blessings contain a turnover tax while the retail prices do not. Thus if we eliminate the turnover tax from the consumption fund, then we are able to evaluate a true and not an inflated statistic — its volume.

But here the following aspect is of importance: in the consumption fund, food products are considered in terms of retail prices, the level of which does not conform to the true costs for production and sale. This difference is covered by state subsidies. The consumption fund includes products the prices for which contain a turnover tax and also products the low retail price for which is supported by the state. Thus, when they are computed jointly, the overall amount of turnover tax (91.5 billion rubles in 1986) decreases by the amount of subsidies both for food goods (and this amounts to almost 60 billion rubles annually) and for certain other types of products. There are also considerable state subsidies for maintenance of the housing fund. In other words, a cost evaluation of the consumption fund does not include the full amount of the turnover tax but rather its balance, which includes the subsidies.

According to computations by NIEI [Scientific Research Institute of Economics] of USSR Gosplan, the proportion of the savings fund in national income, in a computation for prices of a unified level and when the unified profitability norm for the branches is determined proportional to the fixed productive capital, appears as follows (in percentages);

	In Actual Prices	In Prices of a Unified Level
1970	29.5	30.7
1975	26.6	27.8
1980	23.9	26.2
1985	26.4	24.6

The profitability norm in the computations amounted to 12.5 percent and this derived from the equal conditions of the overall volume of final output of material production in existing prices and in prices of the unified level. Of the data cited, it is apparent that the differences in price formation for the various types of products truly introduce definite changes in an evaluation of the proportion of savings. However, they are not very great. This is associated with the fact that factors are at work which both raise and lower it. The effect of turnover tax and a somewhat higher profitability level compared to the branches of heavy industry serves to inflate an evaluation of the consumption fund in a computation for actual prices. But this effect is compensated by a low level of agricultural profitability, the products from the processing of which form almost 70 percent of the private consumption fund, by subsidies added on to the prices for food products of animal origin and for housing and also by a higher profitability for machine building compared to other branches of heavy industry.

The computations for unified price levels do not support the conclusion which underscores a trend towards growth in the norm for savings. To the contrary, it has declined mainly as a result of savings in fixed capital.

### The Problem of Level of Capital Investments

In addition to prices, the dynamics of the savings fund are seriously affected by amortization deductions, which according to the method adopted in our country, are excluded from a computation of the savings fund. A computation of it according to the proportion of gross capital investments (that is, taking amortization into account) in the gross national product furnishes a picture of the savings dynamics that can be compared against other countries.

According to computations carried out by NIEI of USSR Gosplan, this proportion appears as follows for some countries and regions (in percentages):

	USSR (in a computation for prices of a unified level)	USA	Western Europe	Japan
1970	29.3	15.1	23.7	39.0
1975	29.0	14.0	21.5	32.8
1980	27.615.5	21.0	32.2	
1985	28.6	17.2	19.3	28.9

As you can see, the USSR is truly characterized by a stable and high proportion of investments in the gross national product.

During the 12th Five-Year Plan, the overall volume of capital investments will increase by 23.6 percent compared to the 11th Five-Year Plan. The essence of the changes in investment policy to be carried out during the 12th Five-Year Plan and the 1990's will consist of transferring the center of attention for production effectiveness and intensification from intermediate to final results, with an expansion in productive capital — for their renovation and with an intensification of material resources — for a radical improvement in their use.

The program for maintaining a high level of investment activity is of considerable importance with regard to the carrying out of an effective economic policy.

First of all, large capital investments are required for developing the material base for branches in the non-productive sphere and for the construction of housing and installations of the socio-domestic infrastructure. The plans call for a change to take place in the trend towards a reduction in the proportion of non-productive capital investments in their overall volume.

Secondly, a persistent need exists for carrying out new construction in branches which embody the more important achievements of scientific- technical progress — electronics, atomic energy, all-round automation and the production of new materials. A need also continues for large- scale capital investments in branches having a high

and increasing level of capital-intensive production (agriculture and the fuel-energy complex), which is associated primarily with the carrying out of the food and energy programs.

Thirdly, in the interest of mobilizing the reserves for increasing the efficiency of use of the production potential, a requirement also exists for definite capital investments, primarily for the purpose of achieving balance in the development of allied branches, for example ferrous metallurgy and machine building and the construction materials industry and construction.

Fourthly, an increase is taking place in the volume and proportion of capital investments aimed at compensating for the withdrawal of fixed capital. This is associated with accelerating the renovation of the production apparatus and the scales for the withdrawal of fixed capital introduced during the 1960's and 1970's. At that time, there was an especially rapid increase in capital and this explains the considerable amount of fixed capital to be withdrawn during the 12th Five-Year Plan and the 1990's.

Experience in the economic development of our country reveals: the rates of growth in national income and labor productivity increase when accelerating the dynamics of productive capital investments, carried out in a technologically progressive form. These rates decline with a reduction in the rates of growth in investments in their scientific- technical level. It would be incorrect to assume that an increase in the effectiveness of capital investments can compensate to an unlimited degree for a reduction in their rates of growth. It can do so only up until certain limits. But large volumes of investment resources are needed if modern technological changes are to be carried out in a rapid manner in the national economic branches.

The experience of economic development also reveals that as a reduction takes place in the rates of growth for capital investments, a decline is also noted in the indicators for their effectiveness. An insufficiency of investment resources brings about a slow increase in the technical level for production and a corresponding decline in the dynamics of labor productivity.

Thus a planned and stable intensification in investment resources that embody the latest achievements in scientific-technical progress creates the material prerequisites needed for high quality changes in production and an acceleration in the country's socio-economic development and a structural reorganization of social production.

Thus growth is required in both the consumption and savings funds. The increasing social workload being imposed upon the economy must be taken into account. The ratio of the rate of growth in payments and benefits from the social consumption funds to the rate of growth in national income produced during the 1970-1986

period was 1.2. This included: education — 1.04; public health — 1.03; social security and social insurance — 1.42 (and if we consider pensions — 1.5); state expenditures for maintenance of the housing fund — 1.42. The concept of accelerated socio-economic development during the 1990's and planning computations for it call for substantial growth in state expenditures for these purposes. An increase in wages at higher rates than earlier, with a simultaneous increase in wage differentiation depending upon labor results, also appears to be needed and requires a corresponding in the production of consumer goods and services. The implementation of these aims for the concept of acceleration is impossible in the absence of an adequate increase in the rates of growth for national income and a corresponding improvement in the material and physical aspects.

Footnote 1. Questions concerned with the analysis and measurement of economic growth under modern conditions are also examined in the articles entitled "Economic Growth — New Measurement Gauges" (No. 3) and "Radical Reform and Rates of Economic Growth" (No. 10).

7026

## INDUSTRIAL DEVELOPMENT, PERFORMANCE

**Industry, Machinebuilding Require Normative, Price, Wage Changes**  
*18200091 Moscow PLANOVYE KHOZYAYSTVO in Russian No 2, Feb 88 pp 14-20*

[Article by V. Kryukov, doctor of economic sciences: "Intensification of Cost-Accounting Relations in the National Economy"]

[Text] The party's economic policy at the present stage is directed toward the realization of profound shifts in the economy, immediate utilization of qualitative factors in economic growth, and transition to the highest organization and efficiency of production on the basis of an all-around development of productive forces and production relations and improvement in the cost-accounting system.

The content and principles of cost accounting as a method of functioning of the socialist economy were substantiated in V. I. Lenin's works. He saw in cost accounting the possibility of developing initiative and innovation and of expanding the independence of trusts and enterprises in the matter of disposition of financial and material resources (1). Leaning on the objective course of revolutionary development, V. I. Lenin noted that socialism could be built not on enthusiasm, but with the help of enthusiasm, on cost accounting, and on material interest, otherwise it would be impossible to reach communism and to lead tens and tens of millions of people to communism (2).

Utilizing and developing Lenin's cost accounting ideas, the 27th party congress and the June (1987) Plenum of the CPSU Central Committee gave a strong, new impetus to the intensification of cost-accounting relations in the national economy and enhancement of the role and independence of enterprises (associations) and their interest and responsibility in the attainment of the highest final results. Basic Principles of the Fundamental Restructuring of Economic Management envisage a long-term program of actions aimed at strengthening democratic centralism, forming a new system of economic relations in sectors and regions, and creating stable economic conditions for an efficient work of labor collectives.

The integrated system of management, along with the fundamental restructuring of centralized economic management and the cardinal reform in planning, includes the establishment of new organizational structures, expansion of the limits of enterprises' independence, and their transfer to full cost accounting and self-financing.

The experience of the Volga Motor Vehicle Plant and of the Sumy Machine Building Scientific Production Association imeni M. V. Frunze showed the high efficiency of the measures implemented in the retooling and reconstruction of production, efficient utilization of production capacities, development of the social base of labor collectives, and its application to other national economic sectors.

The concentration of the resources of expanded reproduction and their efficient utilization are attained here owing to a more distinct address nature, reduction in the scattering and cost of construction, and rise in its technical level. The goal-oriented expert examination of projects for the biggest construction jobs of the 12th Five-Year Plan conducted by the USSR State Committee for Construction Affairs, the State Committee for Science and Technology, and the USSR Bank for Financing Capital Investments points to the potentials in this direction. It revealed the following: About 40 percent of the projects do not make it possible to significantly raise the technical level of production and to lower the estimated cost of construction and installation work. In this connection the CPSU Central Committee set the task of revising planning documents, improving the quality of technical and economic substantiations of construction, and increasing the responsibility of planning organizations and expert examination bodies in this matter.

Enterprises (associations) of such industrial Union ministries as the Ministry of the Automotive Industry, the Ministry of Instrument Making, Automation Equipment, and Control Systems, the Ministry of Chemical and Petroleum Machine Building, the Ministry of the Petroleum Refining and Petrochemical Industry, and the Ministry of Light Industry were transferred to full cost accounting and self-support in January 1987. Their enterprises were given an extensive opportunity, on the basis of approved indicators, limits, and economic

norms, of independently approving the annual plan, concluding contracts, and using the funds earned by the collective for economic incentives for workers. This produced definite results: Economic work has improved, the labor and political activity of workers and employees is increasing, the system of intraproduction cost accounting is being improved, and the practice of establishing direct long economic relations is expanding.

At the same time, at some enterprises it has not yet been possible to attain a strict fulfillment of planning and contractual discipline. For example, during the first half a year of 1987 in the USSR Ministry of Chemical and Petroleum Machine Building only one-third of the enterprises fully coped with the plan for the sales of output with due regard for contractual obligations and in the USSR Ministry of Instrument Making, Automation Equipment, and Control Systems, 50 percent. Such a situation leads to considerable financial difficulties, in particular to debts of enterprises to the USSR State Bank, suppliers, and other organizations and to the nonfulfillment of the profit plan. In January-May 1987 alone the enterprises of the mentioned ministries failed to receive 16.8 and 45.3 million rubles of profit respectively.

All this attests to the need to further improve cost accounting, to intensify the balance of cost-accounting relations, to widely utilize norms, and to reduce the number of unprofitable production facilities. First of all, a coordination of all the levels of management for a normal functioning of the basic link is also needed.

The stable economic situation of enterprises depends on the balance and proportionality of the economy and restructuring of the planning system, which envisages a rise in the role of the USSR Gosplan, long-term plans for the development of national economic sectors, and democratization. On the basis of general state interests and the use of the law of planned, proportionate development, planning should creatively combine proposals by labor collectives with the tasks of the economic center.

The balance of cost-accounting relations can be improved on condition that a set of measures to improve the financial and credit system and price formation is implemented and the practice of redistribution of funds by highly efficient production facilities to low-profitability and unprofitable ones is rejected. A systematic reflection of socially necessary expenditures and of consumer properties of products in prices will help to reduce subsidies and to create an interconnection among wholesale, purchase, and retail prices. The improvement in prices will make it possible to develop realistic criteria of such economic indicators as the volume of production, labor productivity, output-capital, and dynamics of economic growth and to give a realistic evaluation of positive and negative phenomena in cost-accounting units.

Furthermore, the balance requires a limitation of the allocated distribution of material and technical resources and expansion of wholesale trade in means of production. Of course, here there is a need for a differentiated approach in the priority development of wholesale trade in products for different purposes. For example, in such sectors as heavy machine building and aircraft and ship building, in our opinion, preference should be given to the development of direct long economic relations among enterprises. In light and local industries contractual relations should predominate and the role of wholesale fairs and of a free sale of goods should rise. In construction it is important to develop the economic method and to establish bases for the rental of construction machines and mechanisms under territorial bodies of the USSR State Committee for Material and Technical Supply. At the same time, the possibilities of organizing the rental of equipment from contracting construction organizations should also be taken into account.

Wholesale trade in means of production is often connected with the creation of a surplus in their production over needs, elimination of the shortage, and so forth. However, needs depend on the existing system of material and technical provision with orders, the latter being formed with due regard for various insurance stocks. For example, during the 11th Five-Year Plan circulating capital in commodity stocks in industry increased from 115.9 billion rubles in 1980 to 162.9 billion rubles in 1985, or 40.5 percent, while the volume of production grew by 20 percent. It follows from the data cited that the growth of commodity stocks outstripped the volume of production and the shortage was not reduced. Therefore, there is a need for economic measures directed toward an efficient acquisition and consumption of material resources and a planned implementation of the transfer of sectors and regions to wholesale trade.

The development of a system of normative relations in the utilization of productive capital and labor and natural resources and in profit distribution, which stimulates an increase in output-capital and labor productivity, a reduction in the material intensiveness of output, and an efficient utilization of land, water, and minerals, is of great importance in the improvement in cost accounting.

The existing practice of annually planning the saving of metal and other material resources is a detailing of directions in the expenditure of raw materials. Apparently, resource saving should be included in the magnitude of norms and limits of material and technical resources (according to a consolidated products list) in the structure of the five-year plan and of funds for their basic types in the annual plan.

Undoubtedly, a number of theoretical problems connected with the intensification of cost-accounting relations and their practical utilization require an improvement. In our opinion, among them special significance should be attached to the development of a system of

mutual compensation for losses during a breach of economic contracts, to the unification of sectorial approaches in the evaluation of the activity of enterprises and organizations at a regional level, and to a scientific substantiation of the differentiation of norms depending on working conditions.

The differentiation of norms is interconnected with such problems as an evaluation of the efficiency of work done by the cost-accounting link and the entire society, the situation of the enterprise as the producer of specific products, possibilities of duplicating their output at the country's enterprises, and accounting of the profitability of articles and the state of finances. As academician I. I. Lukinov notes correctly, a single national economic norm of recovery and income, which rules out an economic differentiation not justified economically and cost-accounting destabilization, is the ideal alternative. However, with due regard for the real situation we must not fail to take into account the need for rapidly pulling up those that lag behind and for an accelerated development of priority production facilities, which requires differentiated norms (3). Here we keep in mind the need for a practical solution of the evaluation of the technical and organizational production level.

A system of long-term norms of relations between the state and the basic production link will have to be developed. The coordination of centralized planned management with the development of the initiative of labor collectives and of cost accounting with the system of management in sectors and regions is their important advantage. Progressive norms of all types of expenditures should be reflected in prices, which should be determined on the basis of socially necessary labor expenditures with the inclusion of the profitability norm in accordance with the scale of profit necessary during the transfer of enterprises to full cost accounting and self-financing.

Along with the improvement in price formation the procedure of determining the enterprise profit also needs to be refined. It is well known that profit is formed from proceeds from the sales of output less its full production costs. However, production costs do not take into account the dynamics of production stocks of enterprises and changes in their mutual overdue debts in connection with financial obligations, which, on the one hand, can lead to the growth of profit and, on the other, to the enterprise's debts to suppliers and the bank. In our opinion, the unification of the procedure of calculating production costs at enterprises of various sectors should precede the formation of new prices in the national economy.

The complexity of perfecting the self-financing system at enterprises is connected to a certain extent with the fact that norms are formed within the framework of approved five-year and annual plans. This applies primarily to capital construction and reconstruction plans.

Proposals on correcting approved norms should be examined with due regard for state interests and possibilities of meeting current and long-term needs of labor collectives. It should not be forgotten that the creation of priorities in the social development of collectives cannot be artificial and accelerated.

Significant changes will also have to be made in the material incentive system. A great deal is already being done in this respect. Additional incentives for labor collectives for the fulfillment of contractual obligations concerning deliveries of products in a full volume—the material incentive fund rose 15 percent—were introduced several years ago. In our opinion, under conditions of plan development by the enterprises themselves such a norm can hamper them in the formation of stepped-up plans. Apparently, it is advisable to stimulate the collective through deductions into incentive funds from the profit. This will make it possible to concentrate the attention of labor collectives on lowering production costs and improving the quality of products.

The Law on the State Enterprise (Association) envisages two models of distribution—of the profit and cost-accounting income with a different approach in the formation of wage and economic incentive funds. In the first model based on a normative distribution of profit the wage fund is formed according to the norm in relation to final work results—net output, normative net output, or other (including physical) indicators. The second model based on a normative distribution of income forms a single labor remuneration fund as the remainder of cost-accounting income and resources directed toward the establishment of economic incentive funds. The latter are formed according to norms based on the residual profit or cost-accounting income.

Three economic incentive funds, that is, for the development of production, science, and technology, for social development, and for material incentives, are formed in the first full-cost accounting model. The material incentive fund is not formed in the second model, because it is part of the enterprise's single labor remuneration fund.

Along with the differences in the formation of labor remuneration, wage, and material incentive funds, a single approach to controlling labor remuneration and the created product is envisaged in cost-accounting models. In accordance with the approved norms the enterprise must ensure an outstripping growth of labor productivity as compared with average wages (including payments from the material incentive fund) and of cost-accounting income as compared with the increase in the labor remuneration fund. The regulation of wage payments in case of unforeseen deviations in ratios should be made through the fund for the social development of the collective, in particular through an increase in the capital allocated by the enterprise for housing construction.

Full cost-accounting models were used in various sectors. For example, a model for the formation of long-term norms of deductions from the profit built on the differentiation of the rates of payment for capital depending on profitability in relation to productive capital and production costs was approved at enterprises of 18 industrial ministries in 1986. At present such a scheme is applied at enterprises of the USSR Ministry of Chemical and Petroleum Machine Building. Enterprises of the Ministry of Light Industry and Consumer Services, as well as associations and organizations of the USSR Ministry of Trade, underwent an experimental check. Two models for the formation of the wage fund are to be utilized at enterprises of the Ministry of the Electrical Equipment Industry.

An economic experiment in the formation of wage, social development, and production development funds is also conducted in construction. The collective contract and full cost accounting are applied in the Mosoblektromontazh Trust of the Main Administration for Construction in Moscow Oblast. Such cost-accounting indicators as income, labor productivity (production of total income per worker in basic production and on service and other farms), and the norm for the formation of the wage fund are presented to installation sections. During 6 months of 1987 the trust additionally obtained 630,000 rubles of profit, attaining two-thirds as a result of the saving of material expenditures. Labor productivity in the trust rose by 18.8 percent and the wage increase made up 0.52 percent per percent of labor productivity growth.

The development of wage norms is interconnected with the system of economic indicators and presupposes an improvement in the initial base—a calculation of the volume of production and labor productivity, quantitative and qualitative norm parameters, and a revision of wage rate conditions. The organization of material incentives to a greater extent than earlier should be directed toward the attainment of final indicators in the work of labor collectives.

The first practical experience of enterprises in Sumy, Tula, Orel, and other oblasts shows that shortcomings in the irregular output of products, low production discipline, weak intracost accounting, and underestimate of an efficient organization of economic services are observed under self-financing conditions. Naturally, the transition to cost accounting cannot solve all the problems arising in the course of restructuring. The enterprise functions in a single national economic complex and the shortcomings in the fulfillment of contractual obligations by one group of enterprises are reflected in the results of work of others.

However, enterprises that paid proper attention to a rise in the technical level of production, improvement in quality, and intraproduction cost accounting attain the best final results. For example, such enterprises as the Sumy Scientific Production Association imeni M. V.

Frunze, the Khimprom Production Association, and the Elektron Scientific Production Association stably fulfill the delivery plan. Measures for saving resources and increasing the responsibility of shops and sections for the utilization of equipment, materials, fuel, and electric power are developed at these enterprises. In the organization of socialist competition the role of indicators of the quality of output and of work without rejects has been raised significantly.

In the Khimprom Production Association special attention is assigned to the planned organization of personnel work, to the system of improvement in skills, and to economic and political training. Good domestic conditions for workers and rest zones have been created. There are strong subsidiary farms and a public dining system has been thought out.

A system of certification of the scientific and technical potential has been set up at the Elektron Association. Monograms of the existing and planned technical level and quality and their evaluation with world achievements have been developed according to basic directions in electronic microscopic instruments. The certification of the scientific and technical potential enables the collective to forecast integrated expenditures on the development, manufacture, and testing of instruments. Problems of restructuring scientific subdivisions require a solution in the very near future.

The introduction of basic cost-accounting principles into the work of subdivisions is an important direction in improving it. Proposals on using the profit indicator in intraplant cost accounting were expressed in the economic literature. In practice, however, preference is given to the production cost indicator. Apparently, the construction of an all-around system of commensurating expenditures and results at different stages of intracost accounting should be based on value and physical indicators coordinated with the indicators of the basic cost-accounting link. For example, a perceptible effect in construction and agriculture is attained on the basis of utilization of the check system of settling accounts among subdivisions.

Interesting experience in cost-accounting organization has been accumulated at the Orel Steel Rolling Plant imeni 50-Letiya Oktyabrya of the Soyuzmetiz All-Union Production Association. The profit indicator is presented to shops and a system of cost-accounting sanctions for untimely deliveries of products and quality is in effect. The enterprise's economic service has developed and introduced an intraplant system of cost-accounting indicators and norms aimed at the fulfillment of contractual obligations in a full volume and with a high quality of output. Current recording concerning the production of every reference number of an article is made. Every worker has current information on the production and quality of products and the amount of material incentives.

The organization of intraproduction accounting at the plant is not the only direction in the improvement in economic relations. The material and technical supply service maintains close contacts with partners in cooperation—Krivoy Rog, Cherepovets, Magnitogorsk, and other combines. Strict control over all types of deliveries has been established and optimal normative stocks are created.

Along with the planning and normative regulation of wages an improvement in labor remuneration directly at shops, departments, brigades, and every work place is of great importance in the restructuring of economic management. Such work is being done as of 1 January 1987. For the first time in the practice of state wage regulation labor collectives received the right to independently transfer (within the limits of established norms) workers and employees to new wage rates and salaries. At the same time, the revision of wage rate conditions is made in combination with the improvement in labor standardization, forms of wages, and award of bonuses with the utilization of additional incentive payments and mark-ups.

The "Kharkovskiy Serp i Molot Motor Construction Plant" Production Association was one of the first in machine building to adopt new wage rates and salaries. The introduction of a set of organizational and technical measures, revision of the existing technology and norms of output, and rerating of operations have become the basic directions in the search for and uncovering of potentials. The proportion of technically substantiated norms at the association reached 92 percent and every percent of the wage growth (with due regard for payments from the material incentive fund) accounts for about 1.5 percent of labor productivity growth. In 2 years of the 12th Five-Year Plan labor productivity increased by more than 15 percent.

The transition to new wage conditions and extensive participation of workers and employees in searching for production efficiency potentials create new opportunities in the development of brigade cost accounting and the collective contract. Brigade cost accounting presupposes the collective's economic independence in decision making and in selecting funds for the attainment of the goal set and the possibility of evaluating results and providing incentives for the collective according to final

work results. Therefore, subsequently norms for all types of labor, material, and power expenditures will have to be worked out and approved.

In the creation of favorable conditions for the functioning of cost-accounting brigades it is important to carry out a systematic certification of work places, to ensure a rise in their technical, technological, and organizational level, to teach workers second and related occupations, and to improve the skills of brigade leaders.

The experience of Minsk and Kharkov tractor plants, the Kaluga Turbine Plant, the Moscow Motor Vehicle Plant imeni I. A. Likhachev (in particular, the Mtsensk Affiliate in Orel Oblast), and other enterprises indicates that well-organized brigades attain high final results and a high wage level and become a school of management and cultivation of a communist attitude toward labor. The payment for a single order increases collective material interest and responsibility for the state of technological and labor discipline and makes it possible to efficiently utilize material resources.

The cost-accounting responsibility of the brigade collective is possible on condition that norms for resources are established only for types whose expenditure depends directly on this brigade. Otherwise, a formal approach and discrediting of cost accounting are possible. To increase the efficiency of utilization of labor participation coefficients in the distribution of collective earnings, there is a need for clearly developed criteria of evaluating individual labor, a wide involvement of brigade members in management, and intensification of the role of workers' meetings. All these measures will contribute to a fuller realization of the provisions of the Law on the State Enterprise (Association) and Basic Principles of the Fundamental Restructuring of Economic Management.

#### Footnotes

1. V. I. Lenin, "Poln. sobr. soch." [Complete Works], Vol 43, p 334.

2. Ibid.

3. See: VOPROSY EKONOMIKI, 1987, No 6, p 12.

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11439

## POST HARVEST CROP PROCESSING

### Prospects for Improvement in Post-Procurement Processing

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[Article by A. Yaitskikh, department deputy director of USSR Gosplan: "Comprehensive Utilization of Agricultural Raw Materials in the Processing Industry"]

[Text] In dealing with the problem of more completely satisfying the population's demand for food products a leading role belongs to the food branches of the country's agro-industrial sector.

While steadfastly implementing the USSR Food Program, which was adopted by the May 1982 Plenum of the CPSU Central Committee, agricultural workers have increased production output in farming and livestock raising. This has enabled the processing industry to achieve growth in the output of food products and to reach the levels of the world's more developed countries in terms of caloric content of foods. However, the population's demand for products such as meat, milk, fruits and vegetables is still not being satisfied.

In addition to the planned growth in gross agricultural production on the basis of the widespread transition to intensive technologies a large reserve for increasing food resources during the 12th Five-Year Plan includes curtailing losses of agricultural raw materials by means of improving storage and processing.

This task is especially urgent for the processing branches of industry within the agro-industrial complex which belong to the materials-intensive sectors of production because the share of secondary raw materials obtained during the processing of agricultural products is large. Within the food and meat and dairy industry the proportion of all material expenditures, and primarily agricultural raw materials, equals almost 90 percent within the cost price structure. For example, in order to obtain 1 ton of animal oil it is necessary to process 22 tons of whole milk at the dairy plant; to produce 1 ton of cheese — 9-10 tons of milk. One ton of sugar is obtained by means of the processing of 8.5-10 tons of sugar beets (depending on the sugar content of the beets).

A significant quantity of agricultural raw materials directed into processing results in great losses at all stages of transportation, storage and technological processing, as well as in the development of secondary raw materials and production wastes during the process of producing food products, comprising up to 90 percent of the volume of processed raw materials.

In the dairy industry alone last year during the production of animal oil, raw materials, cheese and other dairy products about 42 million tons of defatted milk and buttermilk and over 13 million tons of milk whey were

produced. This raw material contained over half of all dry whole-milk substance delivered by the dairy industry according to state procurement, including almost 1.5 million tons of valuable food protein, about 2 million tons of lactic sugar and 50,000 tons of milk fat. However, over 50 percent of the defatted milk, buttermilk and milk whey was returned to agriculture for feed purposes in unprocessed form because of the absence of the necessary production capacities for processing this raw material, because of the inadequate supplies in livestock-raising farms of special starter feeds and well as because of the low wholesale price for this raw material.

Each year the sugar industry creates about 70-80 million tons of secondary raw materials and production wastes. Molasses and refined syrup, the general quantity of which equals 3.5-5 million tons per year, are valuable side-products of sugar-beet production and are used primarily as raw materials for the fermentation industry — yeast, citric acid, alcohol production — and in livestock raising. The primary mass of secondary raw materials (60-65 million tons per year) during the processing of sugar beets consists of pulp, 90 percent of which is fed to animals in unprocessed form, which increases losses and decreases the possibilities for utilizing this raw material to produce mixed feeds. The problem of utilizing filtration sedimentation containing lime still has not been solved. This mass, equalling 7-7.5 million tons, could be used for liming and fertilizing acidic soils after being dried.

In the oil and butter industry side products and waste products comprise over 6 million tons and of these over 4 million tons consist of pulp, oil cakes and phosphatides, and the remaining quantity — of sunflower and cotton husk. In this branch there are large reserves for increasing the production of food products on the basis of introducing new technologies for the overall processing of oil-bearing crop seed. Thus, a promising direction for the effective utilization of secondary raw materials is the processing of oil cakes to obtain food protein concentrates and their subsequent use for the production of many food products as protein additives. The introduction of technology to more thoroughly purify sunflower oil will enable us not only to improve the quality of the product but also to produce additional stores of food phosphatides, which are extremely needed in the margarine and bread and roll industries as well as for increasing the production of confectionary items and as substitutes for whole milk.

The aforementioned examples show that significant resources of valuable secondary raw materials are created within the processing industry and are poorly utilized at the present time since technologies for comprehensive processing of agricultural raw materials are being introduced slowly. This decreases possibilities for growth in the output of food items and affects food supplies to the population.

The most problematic area in dealing with the problem of more fully processing agricultural products involves the shortage of production capacities and the slow reequipping of enterprises with highly efficient equipment.

The five-year plan foresees forestalling development of the production base of processing branches within the structure of the agro-industrial complex. It is planned to direct 39 billion rubles of capital investments into fulfilling work on the radical reequipping of this branch, which is greater than during the last five-year plan by a factor of 1.5, including in the food industry — by a factor of 1.6 and in the meat and dairy industry — by a factor of 1.8.

During the period of the current five-year plan that has passed there have been positive changes in the work to develop the base of processing industries. In 1986 many large enterprises were put into operation, which has enabled us to fulfill the established tasks to introduce production capacities and to achieve their considerable growth in the branches of the meat and dairy, sugar and fruit and vegetable industries. Nevertheless, the necessary acceleration of production development has not yet occurred. The tasks foreseen by the plan relating to technical reequipping, reconstruction and capital building of a base are not being fulfilled.

At a meeting of the CPSU Central Committee on the development of the processing branches and the APK [Agro-Industrial Complex] storage base, which took place on 25 May 1987, it was noted that for a long time the necessary attention was not given to developing the needed capacities in the processing branches of industry or to refrigerators. The lack of coordination in the development of raw materials and processing branches within the agro-industrial complex results in losses of up to 15-20 percent of food products on the way from the fields and farms to stores.

The comprehensive utilization of agricultural raw materials for food purposes has, in addition to being highly economically expedient, a considerable moral significance since it teaches individuals to have an economical attitude towards people's property. Complete processing of secondary production wastes enables us to eliminate their harmful effects on the natural environment.

Additional measures on the priority development of the APK's processing industry and on the development of a corresponding base for storing products were determined at the aforementioned meeting.

Basic opportunities for maximal use of agricultural raw materials for food purposes and for the curtailment of losses exist in accelerating the introduction of the achievements of scientific-technical progress, and in the transition of processing branches to resource-sparing, low-waste and waste-free technologies. With this goal the USSR State Committee on Science and Technology and USSR Gosplan in 1985 confirmed a general national

scientific-technical program which foresees tasks on the development and assimilation of the production of full-value food products on the basis of the development and introduction of new technological processes and the development of highly productive automated equipment and modern packing materials.

The program has determined measures to increase industrial use of secondary raw materials obtained during the processing of agricultural products with a vegetable or animal source, as well as the most important tasks related to the assimilation and introduction of new highly productive equipment and technological processes foreseen in the plans for the economic and social development of the USSR.

Contemporary technological processes in the processing branches must meet the following basic requirements — they must have the smallest number of technological operations possible or unify these operations within a single apparatus since in each operation there are additional losses of raw materials; they must achieve maximal output of food products per unit raw materials; they must foresee in a single uninterrupted flow cycle the processing of the secondary raw materials that are created; and they must decrease the expenditure of fuel and energy and other material resources. To a significant degree these requirements are fulfilled by membrane processes which during the current five-year plan are becoming widely utilized in many branches of the processing industry. There is an especially great future for introducing this process within the dairy industry. Membrane technology enables us to produce principally new forms of dairy products characterized by increased nutritional properties and biological value thanks to the complete transition of protein contained in milk into ready products. Here the effectiveness of production increases as a result of a 20-25 percent growth in production output and there is a significant curtailment in expenditures of energy resources as compared to traditional technology. For example, for the evaporation of 1 ton of water in a vacuum apparatus during the production of thickened whey 65 kilograms of standard fuel is required, the cost of which is 1 ruble 95 kopecks, and to eliminate the same amount of water from milk whey using membrane equipment only 9 kilowatt-hours of electrical energy costing about 20 kopecks are needed.

At the present time in the enterprises of the dairy industry there are already 36 pieces of equipment for membrane processing of defatted milk and milk whey. Another 86 sets of membrane equipment will be supplied by machine building plants by the end of the current five-year plan. The introduction of the aforementioned equipment will enable us to achieve a savings of about 170,000 tons of milk in the course of the five-year plan; this milk will be used for the supplementary production of dairy products. There will be a savings of 490,000 standard tons of fuel and all of this will yield an economic effect of 93 million rubles. Other

measures have also been determined for the more complete utilization of secondary dairy products. In 1990 only 65 percent of the defatted milk resources will be utilized as compared to 49.5 percent in 1985; the figures for milk whey are up to 60 percent as compared to 51 percent in 1985.

Within the meat industry the theme of the program is also oriented primarily toward utilizing existing secondary raw materials (bones, food blood of slaughtered livestock, subproducts) for food products.

During the current five-year plan it is planned to extensively introduce new technology for extracting protein substances from the bones of animals and for producing dry bouillon and other food products from them. With this goal in mind individual operating enterprises have begun developing sections and shops for the overall processing of bones for the production of fat and dry bouillon.

With the goal of increasing the effectiveness of utilizing food blood of animals the branch's enterprises are introducing a peroxide-catalase method for clarification of blood and for producing, on this basis, protein mixtures suitable for enriching many food products, thereby increasing their biological and nutritive value.

The fulfillment of a program of overall utilization of raw materials and the renewal of the production of the meat and dairy industry will enable us to increase commodity production output per ton of processed livestock by 63 rubles by 1990 as compared to 1985 and from 1 ton of milk — by 15 rubles. By more fully processing livestock raw materials there will be additional production worth 3.8 billion rubles during the 12th Five-Year Plan.

Another important direction in the efficient utilization of raw materials for food purposes is the assimilation of technology for obtaining food protein concentrates on the basis of the overall processing of soybeans and sunflower seed. At the present time the scientific-research and planning-design organizations of USSR Gosagroprom [State Agro-Industrial Committee], together with machine builders, are developing technology and equipment for obtaining food protein concentrates from the wastes of oil and fat production. Work is being done to introduce membrane equipment for purifying industrial sewage, which will enable us to curtail losses of vegetable oils. Increasing the effectiveness of using the seed of oil-bearing crops is to be achieved by means of increasing volumes of this seed stored under conditions of active ventilation and in gas-regulated environments. This will enable us to curtail losses of oil by 1.5-2 percent during the refinement process. The technical reequipping of oil-extraction production will be implemented by means of the introduction of extraction equipment, the productivity of which is double that of existing equipment. The implementation of the aforementioned and other measures indicated in the five-year plan regarding the intensification of production in the oil and fat industry will enable us to increase by almost 0.5 percent the output of oil during the processing of sunflower and cotton seed and to

produce an additional 45,000 tons in 1990. For the first time in the five-year plan tasks have been foreseen for this branch regarding the introduction of a technology to produce oils that are balanced in their oil-acid composition (over-esterified), and on their basis there will be an organization of the production of new types of margarine products with an improved quality.

The utilization of intensive technologies in the sugar beet industry enables us first and foremost to maximally shorten the schedule for processing sugar beets. The five-year plan calls for significant growth in beet-processing production capacities by means of renovation and technical reequipping of existing enterprises, which will facilitate the fulfillment of the tasks of the Food Program related to curtailing the duration of processing of the beet harvest to 100 days. In sugar plants the introduction of flexible schemes for filtration equipment and highly productive and uninterrupted operating centrifuges will continue; surface-active substances will continue to be utilized during the juice-extraction and crystallization of sugar.

During the 12th Five-Year Plan we must increase by 15 percent the production of sugar beets for delivery to sugar plants, which will require not only the accelerated development of production capacities for processing beets but also the completion of work directed at curtailing losses during beet storage. At the present time due to the absence of dependable conditions for storing beets in beet-reception points of sugar plants, above-norm losses of raw materials translated into sugar terms comprise about 250,000-300,000 tons annually. In order to decrease losses of sugar we must expand the area for storing beets with the use of active ventilation, biologically-active substances, and chemical preservatives which hinder microbiological processes and the germination of root crops during storage. We must introduce foam-generating equipment for covering root crop storage pits with foam plastic, a complex of machinery and mechanisms for unloading large volume trucks, beet collectors, and systems of automatic control and regulation of the temperature-humidity regimen in pits. Thus, by means of the building of mechanized storehouses and paved platforms and with the use of active ventilation of beets in pits the volume of this type of storage for sugar beets is to increase by a factor of 1.7 in 1990 as compared to 1985.

As a result of the increase in the technical level of sugar beet production it is planned to curtail losses of beet mass during the storage and transport of beets to 3.15 percent in 1990 as compared to 3.8 in 1985, and losses of sugar in beets to 0.75 as compared to 0.92 percent. The entire complex of measures carried out during the five-year plan with regard to the intensification of production and the organization of appropriate storage for beets will enable us to increase the output of sugar by 450,000 in 1990.

Extensive work is already being carried out and will continue during the remaining years of the five-year plan to change the profile of alcohol, liqueur-vodka and wine-making enterprises and shops and to increase the output of

non-alcoholic beverages, kvass, juices, extracts, confectionary products, food concentrates and other food products which are in greater demand among the population. In the new-profile enterprises there will be significant expansion of the assortment of new types of products enriched with food additives obtained during the processing of secondary raw materials and during the production of concentrates made from wild fruits, berries and medicinal plants. Calculations show that possibly additional production of food products in these enterprises in 1986-1990 will equal about 4.5 billion rubles.

In addition to increasing the output of food products from secondary raw materials the processing branches of the agro-industrial complex are making a great contribution to the expansion of the feed base for livestock raising. By organizing the complete collection of non-food wastes obtained during the processing of agricultural raw materials, during the 12th Five-Year Plan the production and supply to agriculture and the mixed food industry of dry animal feed will increase by a factor of 1.2, of oil cakes and mill cakes — by a factor of 1.6, and of dry milk substitutes — by a factor of 2. Work results for industry in 1986 and in the period that has already elapsed this year show that the established quotas for the output of these products will be overfulfilled.

In order to curtail losses of agricultural raw materials, to organize a more uniform work volume for production capacities of processing enterprises, to improve the utilization of transportation resources and to curtail expenditures when procuring raw materials the branches of the processing industry have been assigned the task of completing by 1990 the transition to the reception of agricultural products directly in kolkhozes and sovkhozes and to shipping these products for processing using specialized transportation. The improvement of direct ties between suppliers of raw materials and the processing industry has enabled us in recent years to increase the proportion of livestock received directly in enterprises within total volume of livestock deliveries for processing from 18.1 percent in 1980 to 50 percent in 1986, and for dairy cattle — from 20.1 to 60 percent respectively.

Kolkhozes and sovkhozes are carrying out work directed at accelerating the introduction of this progressive form of procurement of agricultural products, and at supplying farms with equipment for refrigeration and storage of milk and with weights for individual weighing of animals. The production and delivery by transportation organizations of automatic livestock wagons and milk trucks will increase. Branch scientific-research organizations of USSR Gosagroprom must in the ongoing year complete the preparation of new and improved standards for livestock production that will establish objective criteria for evaluating the quality of animals under conditions of reception directly in enterprises, as well as corresponding normative-technical documentation which systematizes the order for delivery and reception of livestock and milk.

An important condition for decreasing losses in production, transportation, storage and sale of agricultural raw materials and ready products involves increasing the output of these products in bagged and packaged form for retail sales to the population. The output of food products in small packages within the system of the agro-industrial complex will grow by a factor of 1.9 during the 12th Five-Year Plan, which together with the curtailment of losses will improve the quality of trade and will provide the population with shopping conveniences. In order to achieve the fulfillment of the established tasks relating to the output of packaged products a program has been worked out for increasing the production of packaging materials, for developing new types of packaging from laminated papers, pasting foil, aluminum, and plastic sheeting and for assimilating sets of packaging and packing equipment.

The introduction into the practice of developing state plans of economic and social development both in the 11th and in the 12th five-year plans of indexes related to the development of a base for the processing industry had a considerable positive effect on the overall processing of agricultural raw materials, on improving the use of these raw materials for food purposes and on curtailing their losses.

However, the implementation of the indicated program on the acceleration of development of the material-technical base of the processing branches of the agro-industrial complex, the main goal of which is to increase the output of high-quality food products in a wide assortment on the basis of improving the processing and storage of agricultural products, depends on the work of many ministries and departments. Most alarming in the matter of a timely introduction of resource-sparing and low-waste technology is the inadequate outfitting of the processing industry with highly productive technological equipment. Today many principally-new, waste-free technological processes developed by branch scientific-research and planning-design organizations have not been formulated to the necessary degree because of the existing shortcomings in the work of USSR Minlegpishchemash [Ministry of Machine Building for the Light and Food Industry] and other machine-building ministries that manufacture equipment for the food branches of industry. The technical level of technological equipment supplied by USSR Minlegpishchemash remains low. Over half of the items of equipment are obsolete models and should be subject to modernization or replacement. In the course of a long period of time the processing industry's demand for technological equipment was satisfied at a level of 60-70 percent, and for complexly-mechanized lines — by 30-40 percent. Solving the problems related to the more complete outfitting of agro-industrial enterprises with equipment will facilitate the measures being taken to develop the branch of machine building for the food industry as well as the development of cooperation in this area with CEMA [Council for Mutual Economic Aid] countries.

In order to curtail losses of perishable raw materials and finished products the development within the meat and dairy industry and in the fruit and vegetable industry of

refrigeration capacities and refrigerators is of great importance. Taking this into account, the introduction into operation of refrigeration capacities within the branches of the APK is to be increased during the current five-year plan as compared with actual introductions during 1981-1985 by a factor of almost 2. Indicated measures on the intensification of technological processes for the refrigeration processing of meat and meat products and the introduction of vacuum technology in sausage-culinary production will enable us during the 12th Five-Year Plan to curtail meat losses by about 150,000 tons and to increase commodity resources by 260-270 million rubles in retail prices. By means of strengthening attention toward the development of a storage base for products last year the plan for the introduction of storage facilities was overfulfilled. However, lags in the organization of production of storehouses and refrigerators made of light metal parts can have an effect on the fulfillment of the five-year plan for their introduction. With the appearance of new and the overhaul of existing refrigerators on the basis of a new generation of compressors and refrigeration apparatuses not only will there be a decrease in the deterioration of products but there will also be achieved a high level of mechanization of operations using refrigerators.

While attributing great significance to the development of a base for processing products and storing them, rayon and oblast agroproms are widely utilizing their own building organizations and machine-building plants for the fulfillment of this program, which will enable us in a more compressed period of time to eliminate existing lacks of correspondence existing in various regions of the country between the raw materials base and the capacities of processing enterprises. The generalization of the work experience of many enterprises relating to the overall utilization of raw materials and to the curtailment of losses attests to the fact that the best success is achieved by collectives of enterprises which organize this work mutually with partners (kolkhozes and sovkhozes) on the basis of common economic interests. The transition to self-financing and self-supporting production will undoubtedly increase the responsibility of industrial enterprises and farms for the efficient utilization of food resources.

The cost accounting, normative basis for the new economic mechanism within the processing industry opens up additional possibilities in initiative and enterprise directed at the maximal output of high-quality products per ton of raw materials.

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## LIVESTOCK AND FEED PROCUREMENT

### Developments in Meat Production Reviewed 18240052 Moscow MYASNAYA INDUSTRIYA in Russian No 10, Oct 87 pp 3-6

[Article by A. V. Ignatenko, USSR State Agro-Industrial Committee: "Meat Industry on the Occasion of the 70th Anniversary of the Great October"]

[Excerpt] The decisions of the March (1965) Plenum of the CPSU Central Committee, which determined the long-term program for the advance of agriculture, were of special importance for an increase in the production of livestock products.

Owing to the adopted measures, the volume of meat production, on the average, increased considerably during every year of the 9th Five-Year Plan, totaling 14 million tons in carcass weight. In 1975 more than 17 million tons of livestock and poultry were obtained from state purchases, which was 4.3 million tons more as compared with 1970, livestock and poultry purchases from the population increased by 64 percent, the live weight of purchased livestock rose significantly, and its structure and quality improved.

However, the extremely unfavorable weather conditions in 1975 and during a number of subsequent years, which led to a significant reduction in the livestock population, had a negative effect on the development of animal husbandry in the country, as well as on the volumes of production of meat and meat products.

The implementation of measures for the realization of the party's agrarian policy, despite difficulties, made it possible to increase the average annual gross production of agricultural products to 124 billion rubles during the 10th Five-Year Plan. The production of meat (in carcass weight) increased to 15.1 million tons. With the increase in the country's population this made it possible to raise the level of average per-capita consumption of meat and meat products. However, it was not possible to solve the problem of fully providing the population with meat products.

The Food Program approved by the May (1982) Plenum of the CPSU Central Committee is directed toward the accomplishment of this major task. Owing to the further increase in the efficiency of both agriculture and the industrial sectors connected with it and the decisive transition to primarily intensive factors in economic growth, by the end of the current five-year plan it is envisaged bringing the consumption of meat and meat products up to the optimum level determined by science.

The realization of the outlined plans made it possible to increase the industrial output of meat from raw materials of state resources by 11 percent in 1985, as compared with 1980, of sausages by 6 percent, of semifinished

meat products by 27 percent, and of canned meat by 38 percent. The sector's production potential rose. Owing to the construction, expansion, and reconstruction of enterprises, capacities for the output of 2,100 tons of meat per shift were put into operation during the 5-year period.

Along with the increase in the output of basic products, such processes as the production of dry animal feed, down and feather products, medical preparations, glue, gelatin, and so forth were developed in the meat industry.

However, evaluating the results of the past five-year plan, it is necessary to note that the sector has not attained the goals in the production of most products envisaged by control figures. On the whole, in 1981-1985 a total of 4.4 million tons of meat, 559,000 tons of sausages, and 766 million standard cans of meat were underdelivered. The opportunities of intensifying the policy of economy of raw materials and other material resources were not utilized fully and the fight against losses and mismanagement was not waged sufficiently.

The 27th CPSU Congress set a task of great importance for workers of the agro-industrial complex: In a short time to attain a stable growth of agricultural production and a reliable provision of the country's population with food products. The party's present agrarian policy is directed toward the solution of this problem.

Stepped-up crucial tasks have been set for the meat industry during the current five-year plan. To accomplish them, it will be necessary to ensure a fundamental change in work and to mobilize all available potentials and opportunities. In 1990 the production of meat from raw materials of state resources at meat industry enterprises should increase to 10.5 million tons, of sausages, to 3.4 million tons, and of canned meat, to 1,360 million standard cans, which is 23.5, 8.7, and 55 percent more than the level attained in 1985. The entire planned increase in the volume of output should be ensured without an increase in the number of workers.

The realization of the Food Program requires a fundamental acceleration of the sector's scientific and technical progress, a transition to a more thorough and overall processing of raw materials, and the introduction of waste-free and low-waste technologies.

About 3 billion rubles of state capital investments, which is 1.9-fold more than during the 11th Five-Year Plan, are allocated for the development of the meat industry during the 12th Five-Year Plan. With these funds it is planned to build and reconstruct more than 300 enterprises and to implement major measures for retooling, extensively introducing new equipment, and replacing fixed capital. The construction of processing enterprises is to be carried out basically in raw material zones, which will make it possible to shorten long-distance hauls of raw animal materials.

During the past first year of the 12th Five-Year Plan meat industry enterprises attained certain positive results. The production plan was fulfilled for all basic indicators. A total of 20 million tons of livestock and poultry, which is 1.5 million tons more than in 1985, were received from state purchases and 1,053,000 tons of livestock and poultry in excess of the plan were purchased. The rates of growth of most products exceeded those established by the plan. In 1986, as compared with 1985, the production of meat increased by 7 percent, of sausages, by 3 percent, of semifinished meat products, by 4 percent, and of canned meat, by 5 percent. Products worth 426 million rubles in excess of the plan were produced.

Measures to raise the efficiency of utilization of raw materials and to reduce losses at all production stages are implemented at industrial enterprises. An increase in the volumes of output per unit of processed raw materials is the generalizing indicator of this work. In 1986, as compared with 1985, commodity output per ton of processed livestock and poultry increased by 2 rubles, totaling 1,580 rubles.

However, the sector still has considerable potentials for increasing the production of meat products, primarily through a more thorough and overall processing of raw materials, a change in the structure of production toward an increase in industrial meat processing, a refinement in the assortment, a sharp improvement in the quality of output, an extensive utilization of secondary raw materials, and a reduction in all types of losses.

To put these potentials to use, during the remaining period of the current five-year plan the attention of meat sector workers should be concentrated on accomplishing these crucial tasks.

First of all, it is necessary to solve the problem of refining the system of livestock and poultry procurement and to complete the universal transition to the acceptance of raw animal materials directly at places of production and their delivery by specialized motor transport, which will ensure a reduction in labor and material expenditures in the process of movement of the output of livestock sections to processing enterprises and will make it possible to more efficiently and regularly organize livestock and poultry hauls, to improve the quality of raw materials received for processing, and to reduce their losses.

An increase in the industrial processing of meat into sausages, semifinished meat products, and canned meat is the main factor affecting a rise in output per ton of raw materials.

At present a significant part of the meat (about 47 percent of its total output) is sold in carcass form without industrial processing. Extensive work on organizing the output of meat and meat products in dressed and packaged form with the use of modern container and packaging materials lies ahead.

The output of weighed out meat and meat in blocks contributes to a better preservation of quality and reduction in losses during storage and transportation.

In 1990, as compared with 1985, it is envisaged increasing the production of weighed out products as follows: meat, 1.7-fold; semifinished meat products, 1.8-fold; sausages, 8-fold; rendered edible fat, 3.5-fold.

Special attention should be paid to refining the assortment of products. The production of such meat products as smoked foods, hard smoked sausages, high-grade boneless semifinished products, portion and small-piece semifinished products, and so forth should be developed at outstripping rates.

During the 12th Five-Year Plan it is necessary to take measures to more thoroughly and evenly process raw animal materials for the production of meat products, especially secondary resources—bones, blood, and second-category subproducts. A total of 130,000 tons of the blood of slaughter animals, which is 25 percent more than in 1985, a total of 860,000 tons of bones (19 percent more), and 540,000 tons of second-category subproducts (18 percent more) are to be allocated for the production of meat products in 1990.

The economic effect from the utilization of the bones and blood of slaughter animals for food purposes totals about 110 rubles per ton of raw materials.

To increase the utilization of bones for food purposes at meat industry enterprises, advanced, new technology of extracting bone protein and on its basis producing dry bouillons with spices, sauce concentrates, puddings, and other food products should be widely introduced at meat industry enterprises. In 1990 the annual volume of output of such products should be brought up to 9,000 tons, for which it is necessary to establish sections (shops) for the production of bouillons at the sector's 150 enterprises.

The industrial processing of second-category subproducts is a significant potential for increasing production efficiency. The utilization of 1 ton of second-category subproducts for the production of meat products gives an economic effect of about 100 rubles as compared with their sale in natural form.

The production of poultry meat in eviscerated form ensures an increase of 154 rubles in commodity output per ton of the live weight of poultry. In 1986 the output of poultry meat in eviscerated form made up only 41 percent of its total production. Only 30,000 tons of semifinished and culinary poultry meat products were produced, which made up about 2 percent of the total poultry meat production. The practical experience of the sector's advanced enterprises indicates that a more thorough processing of poultry improves the quality and

profitability of products and their assortment and makes it possible to efficiently utilize raw material resources, increasing the volumes of production of feed from waste.

In 1990, as compared with 1985, the output of poultry meat in eviscerated form in the meat industry must be increased twofold and in weighed out and packaged form, ninefold and of semifinished and culinary poultry meat products, fourfold.

An increase in the production of dry animal feed from inedible raw protein materials is envisaged. On the basis of the envisaged volumes of livestock purchases, in 1990 it is planned to bring the production of dry animal feed up to 673,000 tons, which is 18 percent more than in 1985. The fulfillment of this task requires a fuller utilization of existing potentials. At the same time, it should be taken into consideration that the production of dry animal feed not only contributes to an increase in production efficiency, but also serves the interests of agriculture, strengthening the feed base of animal husbandry.

To ensure a stable operation of meat combines, special attention should be paid to refrigeration facilities. It is necessary to rapidly develop refrigeration capacities and to introduce intensive technologies of cold meat processing, because, ultimately, the efficiency of meat combines and reduction in losses of products during storage depend on this.

The quality of products does not meet consumers' present requirements and needs. At many enterprises there are still cases of gross violations of technological and sanitary discipline. Control over the quality of raw materials, supplies, and finished products at all production stages is not organized satisfactorily. Insufficient attention is paid to a rise in the standard of production and to the introduction of advanced experience of the best enterprises.

To improve the quality of products is one of the main tasks facing the meat industry. To solve it, it is necessary, first of all, to establish strict control over the observance of technological discipline and sanitary conditions and to intensify the role of economic incentives in improving the quality of products.

The plan for organizational and technical measures for a fundamental improvement in the quality of food products for 1987-1990 determined the steps for the intensification of control over the quality of raw materials and finished products, observance of technological and sanitary-hygienic production conditions, refinement of standard technical documents with due regard for the achievements of scientific and technical progress, and outfitting of enterprises with modern types of equipment, instruments, and container and packaging materials. Improvement in the forms of material and moral

incentives for workers of the agro-industrial complex for the output of high-quality products with a priority significance of this indicator is envisaged.

For the realization of the decisions of the 27th CPSU Congress and subsequent plenums of the CPSU Central Committee advanced forms of labor organization and production—cost accounting and the brigade contract—should become widespread in the meat industry and workers' labor activity should be increased. For this in labor collectives, first of all, it is necessary to create conditions for a full utilization of the rights granted them in the solution of production and social problems so that the economic and social development of collectives and the material well-being of every worker may be made dependent directly on the quality of labor and final results.

To carry out this work, it is necessary to organize personnel training everywhere so that all production sections may be headed by competent and enterprising managers capable of organizing work on the basis of full cost-accounting and self-financing principles.

Advanced forms of labor and production organization and intensive technologies should be introduced at every production section. It is necessary to resolutely put a stop to bureaucratic administration and to widely utilize economic levers and incentives. Only a skillful combination of these factors can ensure a qualitatively new level of development of production and increase in its efficiency.

Labor collectives of meat industry enterprises will honorably fulfill the socialist obligations undertaken in honor of the 70th anniversary of the Great October.

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#### RSFSR Officials on New Approaches in Breeding, Production

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**Improvement of Cattle Breeds**  
*18240051 Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 10, Oct 87 pp 48-49*

[Article by G. Ogryzkin, first deputy chief of the Main Administration for the Production of Livestock Products of the RSFSR Gosagroprom, A. Prudov, director of the All-Russian Scientific Research Institute of Pedigree Stockbreeding, and I. Dunin, scientific secretary at the institute: "To Increase the Genetic Potential of Animals"]

[Text] The Russian Federation occupies one of the leading places in all-Union milk and beef production. In the last few years certain positive changes have begun to

appear in milk production, productivity has been growing, and plan fulfillment has been ensured. However, the attained production level does not meet the population's needs for milk and dairy products and there are big feed and labor expenditures and high production costs in the sector. The interests of this cause require the most rapid transfer of dairy cattle breeding to the intensive path of development. An extensive introduction of industrial technology and an accelerated improvement in existing and the development of more productive, new cattle breeds should become the leading links in this work.

Until recently the last task, as a rule, was accomplished by the pure breeding method on the basis of internal genetic resources without an orientation toward industrial production technology. As a result, a significant part of animals in a number of the most important characters and characteristics do not meet the necessary requirements today.

In order to develop cattle breeds with a high milk productivity, it is necessary to utilize both intrabreed genetic resources and the best world achievements. Today traditional pedigree stockbreeding methods cannot ensure the necessary rates of selection progress. The transition from combined cattle breed raising to cattle breeding specialized in milk production presupposes certain economic prerequisites, that is, the sector's fundamental retooling, its transfer to industrial technologies, and reorientation toward the intensive path of development.

Whereas in 1961-1965 equipment worth 1.9 billion rubles, during the 9th Five-Year Plan, 6.5 billion rubles, and during the 10th and 11th Five-Year Plans, 10.3 and 14 billion rubles respectively was received for the mechanization of animal husbandry and feed production, during the 12th Five-Year Plan this indicator will reach 17 billion rubles. This will make it possible to raise the level of overall work mechanization at cattle sections to 80 percent by 1990.

Large capital investments also require a corresponding return—the development of new types of animals, which, first, could have a high milk productivity and a high feed conversion ratio; second, possess a good adaptability to zonal conditions; third, give products meeting higher quality requirements. That is why special attention is paid to the Holstein breed, which gives abundant milk and is very well adapted to mechanical milking.

By 1990 it is planned to increase the volumes of crossing black-and-white and pale yellow-and-white cattle breeds with Holstein breeds to 5 million cows. First of all, this should be done in suburban zones and regions, where dairy cattle raising is the leading sector of agriculture.

The Holstein breed, whose average productivity is 1,000 to 1,200 liters higher than that of other breeds, in addition, is capable of acclimatizing itself quite well under various conditions, is resistant to stress, and is noted for easy calving and a high viability of newborn calves.

Owing to these qualities, Holstein cattle of American and Canadian selection of black-and-white and red-and-white types has become widely known. It is not accidental that pedigree stock resources of the Holstein breed have been included in selection programs in all countries with highly developed dairy cattle raising. For example, the specialization of Hungarian cattle raising according to the so-called "Holstein program" in 10 years made it possible to increase milk production in the country by 50 percent, at the same time, reducing the milk herd by 10 percent.

Such work is also being done in our country now. Sixty-one base farms with a stock of more than 51,000 cows have been assigned for the development of a new domestic black-and-white cattle breed with the use of Holstein bulls. During crossing the breed color is retained and the intensity of growth and the quality of meat and hides virtually remain unchanged. The live weight of adult cattle increases, the level of milk productivity in crossbreeds with a 3/8 to 3/4 Holstein blood fraction rises by 300 to 600 kg respectively, and the milk yield rate increases significantly. If animals are fed and kept properly, their health and reproductive capacity, as compared with initial black-and-white cattle, do not deteriorate.

The crossing of Simmental cattle with the red-and-white Holstein breed began in 1977. Red-and-white Holstein breeds have been selected in order to preserve in general outline the color of the initial breed and to increase its dairy productivity, because among the nine most widespread breeds in the RSFSR Simmental cattle has the lowest productivity.

At base farms of the All-Union Scientific Research Institute of Pedigree Stockbreeding there are more than 10,000 crossbreeds with a 25 to 75 percent Holstein blood fraction. The data of scientific institutions and the production experience of kolkhozes and sovkhozes show that with a 3/8 to 1/2 Holstein blood fraction there are virtually no marked changes in animals in the intensity of increase in the live weight (during the raising and fattening period). Crossbred cows have good udders and they get easily used to mechanical milking.

With high-grade feeding the milk yield during the first lactation in half-blood Simmental-Holstein cows totaled 4,016 kg of milk with a 3.8 percent fat content, during the second, 4,630 and 3.83, and during the third, 5,235 and 3.83 respectively. During the first lactation the increase in the milk yield in half-blood crossbreeds totaled 725 kg, during the second, 819 kg, and during the third, 1,070 kg.

Along with the basic goal—increase in the dairy productivity of Simmental cattle—it is also necessary to take into account its meat qualities. With a 37.5 to 50 percent Holstein blood fraction there are virtually no marked differences in the meat and skin qualities of crossbreeds. When the blood fraction in Holstein breeds increases to

75 percent, during intensive raising the live weight decreases by 3 to 5 percent and the killing-out percentage, by 1 or 2. The results of the slaughtering of culled cows from the Pedigree Stock Sovkhoz imeni Lenin in the Mordovian ASSR after their fattening show that crossbred cows are not inferior to Simmental cows in the killing-out percentage (50 percent as compared to 50.1 percent) and the ratio of meat (77.2 as compared to 77.4) and bones (22.8 as compared to 22.6) in the carcass. Nor is there a difference in the output of flesh per kg of bones.

New types of Kholmogor cattle are to be developed in Central and North-West zones, the nonchernozem zone, Siberia, and the Far East. At base and commodity farms there are now more than 4,000 milking crossbred cows of different genotypes. An analysis of the data on farms in Arkhangelsk, Murmansk, Kirov, Kaluga, and Moscow oblasts shows that during the first lactation the milk obtained from such animals exceeded the milk obtained from Kholmogor cows by 400 to 800 kg without any losses and negative changes in breed characters.

Many specialists believe, not without reason, that the Holstein breed should be utilized where more than 3,000 kg of milk per cow are obtained. In fact, if we take an increase of 10 percent in the milk yield of crossbreeds, as compared to the initial breed, with a milk yield of 2,000 kg this will total 200 kg per head of cattle and with 3,000 to 4,000 kg, 300 to 400 kg. Thus, in the last case the effect in absolute terms will be 1.5- to 2-fold higher. Therefore, it is advisable to send the sperm of Holstein breeds first of all to farms that have highly productive cows at their disposal.

If only purebred Holstein sires are used, a full absorption of the hereditary qualities of black-and-white, Simmental, and Kholmogor cattle is inevitable. For example, Hungary and Italy follow such a path. Our programs are superior, because Holstein cattle requires higher-level and adequate feeding, but in a number of the republic's soil and climatic zones it is not yet possible to attain this.

The role of pedigree stock farms in the work on improving existing breeds with the use of Holstein breeds is a special problem. Of course, internal pedigree stock resources are needed for this, because it is expensive and inefficient to purchase Holstein cattle for replenishing new pedigree stock farms. Pedigree stock plants can be organized on the basis of existing pedigree stock, as well as the best commodity, farms, which should become reproducers of both purebred bulls of the Holstein breed and of crossbred animals. Pedigree stock plants should change over primarily to the breeding and reproduction of sires with the "blood" of the Holstein breed. Otherwise, they will not meet their purpose.

Work on transforming domestic cattle breeds is inconceivable without increasing the production and improving the quality of feed. Basically, the growth of the production of livestock products is hampered not by the

shortage of feed, but by the imbalance of rations in terms of food elements. The protein shortage is especially perceptible. Therefore, today the most serious attention is paid to an expansion of the areas sown with oil and leguminous crops.

The entire increase in fodder should be used to more fully utilize the genetic capabilities of cattle. That is, feed expended on life support should be "turned" to milk production.

The crossing of a number of the most widespread domestic breeds with the Holstein breed not only does not diminish the importance of zootechnical measures (obtaining and evaluating sires, raising young replacement stock, and refining keeping and milking technology), but also enhances them. In highly productive animals the requirements for keeping conditions are also higher.

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**Intensive Cattle Breeding Methods**  
*18240051 Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 10, Oct 87 pp 49-50*

[Article by A. Yelistratov, chief of the Subdepartment for Intensification of Beef Production of the RSFSR Gosagroprom: "Beef According to Intensive Technology"]

[Text] The population's provision with meat depends to a large extent on how successfully cattle raising and fattening problems are solved. In 1990 RSFSR kolkhozes and sovkhozes will produce 6 million tons of beef (in live weight), that is, will increase production by 15 percent as compared to what was attained in 1986.

To accomplish this task, it is necessary to activate all existing potentials. Increasing the delivery weight of animals and fattening young cattle up to high weight standards are the most important of them. In 1986 most oblasts, krays, and autonomous republics increased the average delivery live weight of cattle for slaughtering. Throughout the RSFSR it increased by 16 kg per head of animal, totaling 381 kg. Owing to this alone, about 200,000 tons of meat were procured additionally. A total of 6.5 million head of cattle with an average live weight of 391 kg per head (6 kg more than during the corresponding period of last year) were slaughtered at Russia's meat combines during the first half a year of 1987.

Kolkhozes, sovkhozes, and interfarm enterprises apply different intensive technologies and methods of cattle raising and fattening, which under specific conditions make it possible to attain a high efficiency. Cattle fattening up to heavy weight standards is usually carried out with internally produced feed, as well as with the use of sugar beet pulp and malt residues. Various keeping

methods, both loose keeping on slotted floors in groups of 18 to 20 head and on a leash, are used. We shall dwell on some of them at a somewhat greater length.

The technology of breeding and fattening young cattle from the age of 15 to 20 days until slaughtering for meat is promising. The production cycle is divided into three periods here: breeding of dairy calves and intensive raising and fattening of young stock until it is sold for meat with a live weight of 450 kg and more. A total of 12,856 bulls were raised and fattened according to this technology at the complex of the Sovkhoz imeni 60-Letiya SSSR in the Bashkir ASSR in 1986. They were sold for meat with an average weight of 492 kg per head. A total of 5,600 head had a live weight of more than 500 kg.

The technology of intensive raising and fattening of young stock received from kolkhozes and sovkhozes at specialized farms and livestock sections at the age of 6 to 10 months with a live weight of 150 to 180 kg has become widespread in the republic. The production process includes two basic periods, that is, intensive raising and finishing. To increase the intensity of growth, to form animals capable of consuming and assimilating a large quantity of bulk feed, and thereby to prepare young stock for finishing are the basic tasks of the first period. A high productivity of cattle is ensured during the second period, for which intensive and adequate feeding for animals is organized during the entire keeping time.

During the first half a year of 1987 the Yulduz Sovkhoz performing the functions of an interfarm enterprise for the intensive raising and fattening of cattle in Chistopolskiy Rayon in the Tatar ASSR sold 3,186 head of cattle for meat, including 2,270 with a live weight of 451 to 500 kg. On the Volga Sovkhoz and on the Minskoye Experimental Model Farm in Kostroma Oblast cattle is fattened up to high weight standards. At the specialized livestock section on the Minskoye Experimental Model Farm 380 to 420 head of cattle are fattened constantly. During January-June of the current year 225 head with an average live weight of 475 kg were sold for meat there. Using this technology, the farms of the Myasoprom Association in Orel Oblast increased the average delivery weight of cattle for slaughtering to 451 kg.

The use of uniform feeding with full-ration feed mixtures during the intensive raising and fattening of cattle gives good results. This makes it possible to raise the productivity of animals and to increase average daily weight gains to 1,000 or 1,200 grams with feed expenditures of 7 to 7.5 feed units per kg of weight gain. The use of grain haylage (monofeed) gives good results. This high-energy feed is well digested and assimilated by ruminants. Monofeed should be introduced into a ration gradually and calves should get used to it from the age of 2 months.

When grain haylage is fed as the only feed from the age of 6 to 18 months, average daily weight gains in bulls exceed 1 kg and at the age of 1 and 1/2 years they reach

a live weight of 520 to 525 kg. At the same time, feed consumption per kg of weight gain is 6.1 to 6.2 feed units. It should be noted that many farms in the RSFSR use grain fodder. However, it shows an especially high efficiency in regions with extreme climatic conditions.

Contract collectives of the Gvardeyets Sovkhoz in Nadterechnyy Rayon in the Checheno-Ingush ASSR have learned to grow high harvests of mangel-wurzel and widely use it in the rations of the fattening stock. In 1986 they sold for meat 4,165 head of cattle with an average live weight of 437 kg per head. The fattening of young stock up to the weight of 500 kg and more is well organized on open fattening areas on the Svetlinskiy Sovkhoz in Orenburg Oblast. Farms in Belgorod Oblast have transferred production to an industrial basis, have introduced intensive technologies, and successfully fatten cattle up to heavy weight standards. In 1986 they delivered for slaughtering 233,000 head of cattle with an average live weight of 412 kg per head. At the same time, 59 percent of the young stock was fattened up to the live weight of 463 kg. During the first half a year of 1987 farms in this oblast delivered 169,000 head of cattle with an average weight of 425 kg to meat combines. The introduction of pressed pulp into the ration of fattening stock contributed to a rise in weight standards. Its feeding in silaged form ensures an approximately the same productivity of young cattle as does dry pulp and makes it possible to prolong fattening with pulp until the final live weight of more than 500 kg is obtained without any consequences for the health of animals. As the experiments conducted by associates at the Belgorod Agricultural Institute have shown, such fattening is also effective at a lower level of consumption of concentrates.

Specialized farms engaged in fattening with malt residues also increase the live delivery weight of cattle. For example, during the first 6 months of the current year the Talitskiy Complex in Sverdlovsk Oblast delivered cattle weighing 489 kg, as compared to 432 kg last year, to meat combines and the Petrovskiy Sovkhoz in Ivanovo Oblast delivered 407 kg as compared to 385 kg.

It should be kept in mind that almost all the cattle, including dairy, breeds raised in the republic have a high growth energy. Bulls are capable of gaining 500 kg and more. The slaughtering of animals that have not attained the optimum live weight leads to big losses. Furthermore, raising animals up to a heavy weight also makes it possible to obtain good hides. Great opportunities to increase the intensity of fattening are inherent in the use of collective, family, and personal contracts.

Fattening up to high weight standards is now stimulated well. The payment of 35 percent in addition to the purchase price for young stock with a live weight ranging from 351 to 400 kg is envisaged and of 50 percent, for a live weight of over 400 kg. The sale of heavy animals gives a substantial profit and greatly increases the profitability of beef production. Here are only two examples. Last year the average live weight of cattle slaughtered at

meat combines of Novgorod Oblast totaled 330 kg. The oblast's kolkhozes and sovkhozes fattened only 17 percent of the young stock up to heavy weight standards. As a result, the sale price per ton of live weight (without allowances for low-profitability and unprofitable farms and for exceeding the average annual level of purchases) was 1,885 rubles there. In Orel Oblast, however, cattle with an average weight of 382 kg was slaughtered and kolkhozes and state farms fattened 52 percent of the young stock up to the delivery weight of 436 kg. On the average, 2,292 rubles per ton of live weight were paid to farms. Yet in terms of purchase prices of cattle these oblasts enter one zone.

A new state standard "cattle for slaughtering" is being put into effect as of 1 January 1988. It envisages four categories of young cattle delivered for slaughtering: choice category—a live weight of over 450 kg; first category—400 to 450 kg; second category—350 to 400 kg; third category—300 to 350 kg. With the introduction of this All-Union State Standard beef production on an intensive basis is stimulated and the profitability of fattening cattle up to a high delivery weight increases.

The fattening of all young cattle up to the weight of 450 or 460 kg will make it possible to additionally obtain about 1 million tons of beef (in live weight) annually and will contribute to a successful fulfillment of the assignments of the Food Program.

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#### Shortcomings in Animal Husbandry

18240051 Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 12 Dec 87 pp 21-22

[Article by G. Nerubenko, deputy chief of the Administration of Animal Husbandry of the RSFSR Gosagroprom: "Not to Reduce the Pace"]

[Text] Russia's kolkhozes and sovkhozes obtain one-half of the annual gross milk yield and 90 percent of the offspring during the stabling period. That is why wintering is considered a serious test for livestock breeders, which largely determines the sector's further development.

Last year rural workers successfully coped with this test. For the results of wintering the republic was awarded the Honor Certificate of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU, and the Central Committee of the Komsomol. During that period livestock productivity and purchases of all types of livestock products, including milk, increased markedly—by 4.4 percent. Owing to the increase of more than 100 kg in the milk yield per cow, 1.3 million tons of this diet product more than during the preceding year were obtained throughout the RSFSR.

The achievements of workers at livestock sections in Komi, Udmurt, and Chuvash autonomous republics, Krasnodar and Maritime krais, and Ivanovo, Kamchatka, Sverdlovsk, and Moscow oblasts are especially perceptible. Workers on the Nemchinovka Experimental Model Farm in Moscow Oblast, where the average milk yield of cows at the experimental livestock section reached 7,729 kg, on the Timiryazevskoye Experimental Model Farm in Sakhalin Oblast, where it rose to 7,123 kg, and at the Petrovskiy State Pedigree Stock Plant in Leningrad Oblast, where 6,740 kg were obtained, set distinctive records. In the capital's oblast 865 experts in mechanical milking exceeded the 5,000 [kg] target, 138, the 6,000 [kg], and 17, the 7,000 [kg].

It is gratifying to realize that, whereas in Russia 2 years ago there were slightly more than 2,000 farms with a cow productivity of 3,000 to 3,500 kg of milk, in 1968 they increased by almost 1,000. The number of farms, where the average milk yield of cows exceeded the 4,000 [kg] target, increased by one-third. Everyone knows the "secrets" of such achievements: strengthening of the feed base, purposeful selection work, and introduction of advanced production technologies and forms of labor organization. The example of livestock breeders in Sverdlovsk Oblast, which adopted a firm policy of a qualitative herd transformation, is instructive. In the last few years they have obtained 89 or 90 calves per 100 cows, extensively crossing local cattle with Holstein-Friesian cattle. Links and brigades working on the basis of the collective contract produce almost three-fourths of the livestock products in the oblast. At livestock sections everywhere conditions for highly productive labor have been created and the administration's concern for livestock breeders is felt. Is it not why the average milk yield per cow has increased by almost 640 kg in the oblast in the last 6 years? This year the people of Sverdlovsk Oblast have undertaken to obtain a milk yield of 3,100 kg per cow.

In 1987 farms in Krasnodar Kray, one of the winners in the all-Union socialist competition during last wintering, intended to exceed this target. Here milk production costs are the lowest in the RSFSR. The achievements of the people of Kuban are connected with the improvement in work on herd reproduction and an extensive introduction into practice of uniform feeding of animals, in whose rations coarse and succulent feed predominates. Such a method of feeding cattle is now used on many of the republic's farms. It is especially promising for regions, where there is not enough natural grazing land.

The further expansion of the independence of kolkhozes and sovkhozes and improvement in the management of the entire economic mechanism contributed to the successful wintering last year. Organizational work on increasing the effectiveness of socialist competition among livestock section workers and improving their cultural-general, medical, and trade services also gave a visible return.

Unfortunately, such work is by no means carried out everywhere. Farms in the Checheno-Ingush ASSR and in Astrakhan, Volgograd, Pskov, Rostov, Kurgan, Tyumen, and some other oblasts lowered the volumes of milk production as compared to the preceding winter period. Checks showed that the livestock sections and dairy complexes of kolkhozes and sovkhozes in these oblasts were not prepared for winter, were not staffed, and were not sufficiently provided with quality feed. The socialist competition among livestock breeders was carried out formally and its results were reviewed irregularly.

Unfortunately, there are oblasts where such shortcomings are repeated year after year. In particular, Yaroslavl Oblast, which failed to deliver 91,000 tons of milk to the state during the past five-year plan, belongs to such oblasts. Little was done in the oblast to improve wintering last year. Yet the people of Yaroslavl Oblast had good traditions in the development of dairy husbandry.

The chronic lack of provision of cattle with adequate feed and the inability to use it efficiently are some of the reasons for the sector's "impoverishment." An efficient use of fodder must be mentioned now, because on many farms this year the quality of feed is low and its reserves are insufficient. For example, the consumption of hay by cattle on farms in Bashkiria makes up one-third of the norm and of fodder roots crops, one-half. On the other hand, the consumption of straw is fourfold higher and of silage, 20 percent. The unsatisfactory feed base is the result of the low standard of farming. Advanced technologies of procuring, storing, and using fodder are introduced slowly here. The wages of machine operators do not depend on the content of the dry substance and digestible protein in feed. Only one-half of the 1,130,000 tons of grain fodder fed last year was used in the form of mixed feed. Animals received the remaining grain in unprocessed form, which led to a significant overexpenditure of concentrated feed.

The protein problem should be solved both through an increase in the yield of traditional leguminous crops—peas, lupin, and lucerne—and through an expansion of the areas sown with rape, as is done successfully in Lipetsk Oblast.

A qualitative transformation of the breeding stock is a big potential for increasing milk production. After all, no matter how a nondescript cow is fed, more than 3,000 kg of milk will not be obtained from it. Meanwhile, this truth was forgotten in Ivanovo, Yaroslavl, and Chita oblasts. Cattle breeds are improved very slowly here.

The high barrenness of cows also hampers the rates of growth connected with the production of livestock products. For example, can a big quantity of milk be expected in Saratov Oblast, or in the Buryat and Tuva autonomous republics, if less than 70 years [sic] per 100 cows are annually obtained here?

The state of pedigree stock farms, on whose work level the productivity of the dairy herd in rayons and the oblast as a whole depends to a considerable extent, is of serious concern. For example, it is very difficult for Smolensk livestock breeders to increase the milk productivity of cows. After all, on 20 pedigree stock farms in this oblast last year the productivity of cows was only slightly more than 2,500 kg.

What help can neighboring farms receive from the Poimskiy Pedigree Stock Farm in Penza Oblast, the Velikoye Selo Pedigree Stock Farm in Novgorod Oblast, and the Andromer Pedigree Stock Farm in Pskov Oblast if they themselves obtain only 1,700 to 1,800 kg of milk per fodder cow?

In order to successfully fulfill the assignments of the Food Program concerning the growth of production of livestock products, it is necessary to maximally utilize local opportunities and to implement the party policy of self-provision with food products with great persistence. There is definite experience in this matter. For example, Vladimir Oblast not long ago still received milk subsidies from the state. However, owing to the intensification of dairy cattle raising, gross milk yields have increased by 23 percent here in the last 5 years. This made it possible not only to give up the import of milk, but to increase its per-capita consumption by more than 60 kg. Tomsk Oblast changed over to self-provision with milk and meat. Real opportunities for this exist in a number of other oblasts.

The second year of the five-year plan is coming to an end and regular cattle wintering is proceeding. The experience of many advanced farms in the republic shows that it too can become a season of a big quantity of milk. For this managers of kolkhozes and sovkhozes and specialists of RAPO and agro-industrial complexes must pay serious attention to work with feed.

Winter at livestock sections is the season of mass calving. The results of wintering, as well as of the entire next year, largely depend on how the feeding and keeping of dry cows are organized. Animals are better provided with adequate and balanced rations under conditions of the flow-shop system of milk production, which livestock breeders as yet do not adopt in a sufficiently active manner. Furthermore, it is necessary to more extensively utilize material incentives for livestock section workers for increasing the milk yield of cows and their productivity. A close interaction of pedigree stock, zootechnical, and veterinary services in the organization of the feeding and keeping of cows and calves and of a timely insemination of animals will make it possible to shorten their service period and, consequently, to increase offspring and milk yields.

The insemination of replacement calves during the fourth quarter so that this stock may replenish the basic herd as early as the second half a year is an important condition for obtaining a big quantity of milk.

Unfortunately, such potentials of increasing the milk productivity of animals as the family contract, two-shift regime, and two-cycle daily work schedule for livestock breeders are still utilized poorly. Yet concern for people is concern for production. This is the view, for example, on the Urozhaynyy Sovkhoz in Tula Oblast, where milk yields doubled during the past five-year plan. During that time the level of overall mechanization at livestock sections rose twofold and the two-shift system was introduced. A red corner, a tea room, and comfortable rest rooms were equipped for livestock breeders. An overall receiving center and a barbershop were opened. All this helped to form a competent and stable collective, which obtains high milk yields even in winter.

During the current year Russia's livestock breeders intend to produce 2.7 percent more milk than in 1986. The assignment of the third year of the five-year plan is even more stepped-up. The milk yield per cow will have to be increased by 65 to 70 kg, which will make it possible to additionally obtain more than 1 million tons of milk. In order that these figures do not remain on paper, it is important to activate now all the potentials existing in the sector. At this time animal husbandry is the main concern of both farm managers and managers of public organizations.

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11439

#### Food Industry Officials Review Dairy Production, Prospects

18240057 Moscow MOLOCHNAYA  
*PROMYSHLENNOST* in Russian  
No 11, Nov 87 pp 1-5, 5-8

[Article by A. G. Yaitskikh, Department of Food Industry of USSR Gosplan: "New, Great Opportunities in Production Development"]

[Excerpts] The dairy industry is one of the leading branches of the national economy called upon to supply the population with priority food products. The presence in dairy products of substances such as protein, fats, carbohydrates, mineral salts and vitamins that are required for the normal development of the body are the foundation for their great food and biological value.

During the years of Soviet power this branch has travelled a long road and has been transformed from a small primitive trade into a highly-developed industry with an extensively-developed network of modern enterprises equipped with highly-productive technological equipment. This consists primarily of dairy combines and plants specializing in the production of whole-milk products, animal fat and dry non-fat products, cheeses, canned dairy products as well as of enterprises involved in primary milk processing.

In pre-revolutionary Russia milk was processed in almost 7,000 small plants located, as a rule, in wooden buildings. In 1917 gross milk production (within the framework of the USSR until 17 September 1939) comprised 24.2 million tons; of this quantity less than 10 percent went to enterprises, an average of 318 tons per year for each plant. Butter processing using separators, butter churns and processors using manual labor were prevalent.

Our country is giving great attention to the development of the dairy industry. The party and government are taking extensive measures to improve supplies of dairy products for the population. Collectivization of agriculture and the expansion of the raw materials base lent a great impulse to the branch's development. During that period the building of new and technically-reequipped operating enterprises of the dairy industry began.

The May 1982 Plenum of the CPSU Central Committee, which passed the USSR Food Program and determined measures directed at strengthening the material-technical base of agriculture and related processing industries, was of great importance for the continued development of the branch.

The adoption of the resolutions at the plenum laid the groundwork for the development of the agro-industrial complex and facilitated considerable growth in milk production and in its supply for industry. If we take as our reference point 1981, which preceded the plenum, then in 1985 or within 4 years state procurement of milk increased by 12.5 million tons. The year 1986 yielded great additions when milk production increased by 3.7 million tons, or by 5.4 percent. All of this had a positive effect on the fulfillment by enterprises of the planned output of the basic types of dairy products. In 1986 as compared to 1985 industrial output of butter increased from 93,000 tons, or by 6.1 percent, and the production of whole milk products reached 31.2 million tons, an increase of 1.4 million tons in 1 year. Cheese output equalled 834,000 tons. As a result of the transition of dairy livestock raising to intensive technology, of the introduction in kolkhozes and sovkhozes of brigade and seed contracts, of the strengthening of the feed base and of the improvement in breeding-pedigree work each year there has been growth in the productivity of farms and in the amount of milk available for market. Thanks to this in 4 years per capita consumption of milk and milk products increased by 32 kilograms and reached 332 kilograms per year.

In the branch's enterprises the assortment of products is being enriched and the taste and nutritive properties of the products are improving. There is a constant growth in the output of sour-milk beverages, cheeses, canned dairy products, whey-cheese and other products which are in great demand by the population. Each year the

production of new types of products balanced in protein and butterfat content and enriched with fruit and berry supplements, vitamins and other healthy components is assimilated.

The 27th CPSU Congress has set a goal for workers of the agro-industrial complex with regard to achieving continued improvements in food supplies and significant additions in per capita consumption of meat, milk and other products during the 12th Five-Year Plan. In connection with the noted positive tendencies in production and procurement of milk it is expected that the tasks of the Food Program related to the production of dairy products will be fulfilled by 1990, and to the output of animal oils and whole-milk products — overfulfilled. The production of dry milk mixtures for children will increase by a factor of over 1.5 as compared to 1985, and of liquid and paste-forming dairy products — by a factor greater than 2. The industrial processing of defatted milk, buttermilk and milk whey into food products and ZTsM [whole milk substitutes] will increase.

The solution to these problems required additional measures related to accelerating the development of the production-technical base of industry. In December 1985 the CPSU Central Committee and USSR Council of Ministers passed a resolution, "On Accelerating the Development of the Material-Technical Base of Processing Industries of the Agro-Industrial Complex in 1986-1990." USSR Gosagroprom [State Agro-Industrial Committee] and the gosagroproms of union republics have been given assignments to increase production capacities during the 12th Five-Year Plan by means of the building of new facilities and of expanding or reequipping existing enterprises. Within the dairy industry it is planned to assimilate capital investments in a volume that exceeds that actually assimilated in 1981-1985 by a factor of almost 1.5.

The introduction into operation of capacities as compared to the 11th Five-Year Plan will increase as regards the production of whole milk products by a factor of 1.7, cheese — 1.4 and dry defatted milk, ZTsM and dry whey — by a factor of 1.9. Large dairy combines and city dairy plants will be put into operation in the cities of Moscow, Sochi, Nalchik, Novosibirsk, Tyumen, Kiselevsk, Chita, Sebastopol, Chernovtsy, Zaporozye, Stakhanov, Kiev, Borisov, Pavlodar, Riga and many others. A significant program of building cheese-production plants and plants for the production of defatted dry milk and the renovation of canned dairy product combines are planned.

In industry the scale of introduction of technologies for the overall processing of milk is expanding; the output of ready products as a result of increasing output and decreasing losses is increasing. By 1990 significant quantities of milk raw materials will be processed with the use of membrane equipment. In the future this technology is to be utilized not only for the processing of milk whey and defatted milk, but also for the production of a number of dairy products. Work is being carried out in

the oblast to improve the technology for new types of cream with controlled properties and composition and for creating new dairy concentrates for use in the meat and food industry.

During the current five-year plan deliveries to the dairy industry of new highly-productive technology with a great per unit capacity — of lamellate pasturizing-cooling equipment with a productivity of up to 25,000 liters per hour, reservoirs for the storage of milk with a capacity of 100 tons, lines for bottling milk and sour milk products with a capacity of 24,000 bottles per hour and so forth — will increase.

A more complete and uniform satisfaction of the population's demand for dairy products, an expansion of their assortment and an improvement in quality and the thorough processing of milk are directly tied to accelerating the development of the production-technical base of industry and to supplying enterprises with contemporary technological equipment.

In connection with this it is essential to more quickly eliminate the lags that have developed over a period of many years in the assimilation of capital investments, which is still being done slowly, giving rise to serious concern. In the near future it is essential to achieve the unconditional fulfillment of plans related to the building and renovation of enterprises and shops, adhering to the normative schedule and estimated cost of objects. It is important to eliminate disproportions that exist in a number of regions with regard to growth in capacities and procurement of livestock products as well as in the distribution of enterprises. In some oblasts and krays of the RSFSR, the Ukraine, Belorussia and Kazakhstan milk is transported considerable distances, which results in decreased quality and extra expenditures. In many cities and industrial centers there is a shortage of capacities earmarked for the production of whole milk products. Capacities are growing slowly for the production of cheese and children's foods.

Supplying the branch with technological equipment, especially with packaging lines and automatic machines and packing and packaging materials, requires special attention in order to significantly increase the output of dairy products, especially sour cream and cheese products, in a form that is convenient to the consumer.

Great reserves for increasing the effectiveness of utilizing raw materials for food purposes can be found in changing the existing structure for processing these materials. At the present time about half of the procured milk is being used for butter production while at the same time about 40 percent is used for the production of whole milk products, only 7-8 percent for cheeses and 2-2.5 percent for canned dairy products although these products are in great demand among our population and utilize all the nutritive components of the raw material more fully. The structure of the assortment of whole milk

products must be improved — the production of sour milk products, especially pot cheese and cheese curds-pot cheese products, has been increased.

This kind of direction in the use of milk developed as a result of the shortage of capacities for the output of whole milk products, cheese, and canned dairy products as well as as a result of the low wholesale factory price for defatted milk returned to agriculture. As of yet a noticeable improvement in the structure of milk processing has not been achieved, which decreases food resources in the country, and valuable components of raw materials (albumin, lactose, mineral substances) are directed into feed for livestock in significant quantities.

In his speech at the 27th CPSU Congress the General Secretary of the CPSU Central Committee, Comrade M. S. Gorbachev, noted, "The nearest source for replenishing the production fund includes curtailing losses of field and farm products during harvesting, transportation, storage and processing. We have considerable reserves to accomplish this; the addition in resources for consumption can comprise up to 20, and for some types of products up to 30 percent. And the expenditure for eliminating losses is lower by a factor of 2-3 than for supplementary production of the same production volume." This task is especially urgent for the dairy industry. Now almost half of the defatted milk produced is returned to kolkhozes and sovkhozes for livestock feed in non-processed form, which decreases the effectiveness of utilizing it in livestock raising. At the same time in many specialized plants that produce dry defatted milk and ZTsM capacities are being used poorly. Secondary raw materials are inadequately directed into the production of defatted dairy products, the assortment of which is already very narrow.

An important condition for the maximal utilization of agricultural raw materials for food purposes and for the curtailment of losses is the accelerated introduction into production of the achievements of science and technology, the transition of processing industries to resource-sparing, low-waste and waste-free technologies. The resolution of the CPSU Central Committee and USSR Council of Ministers, "On Improving the Scientific Foundation for the Development of the Country's Agro-Industrial Complex," establishes the task of achieving a high return and growth in the economic effectiveness of production-technical and scientific potential of the agro-industrial complex on the basis of the close integration of science and production with the goal of fully supplying the country's population with all types of food products. Within the dairy industry the efforts of scientific-research organizations must be directed at solving the problems related to increasing the processing of milk and secondary raw materials, at developing new forms of protein and dairy products having a greater shelf life, and at further improving membrane technology and the technology for producing principally new types of items characterized by improved nutritive characteristics and biological value.

Considering the large role of machine building in equipping the processing industries, including the dairy industry, with new technology, additional measures have been taken for the forestalling development of machine building in the food industry. The list of manufactured equipment has been expanded significantly, and the import of technology from CEMA [Council for Mutual Economic Aid] countries has increased.

The implementation of the indicated measures in the area of scientific-technical progress will enable us to achieve all growth in the output of dairy products completely by means of growth in labor productivity during the 12th Five-Year Plan.

The transition beginning on 1 January 1986 to new management conditions that foresaw an increased role and greater responsibility for collectives of associations and enterprises in solving production and management problems, in developing and implementing plans and in improving work and everyday living conditions had a positive effect on the work of the branch. The complete fulfillment of plans for the delivery of products according to contracts and duty assignments has become the basis for the evaluation of work. The quantity of indexes confirmed by higher-standing organs has been curtailed by over 40 percent. The system for planning capital building has been changed, giving more rights to enterprises in using the production development fund.

An analysis of the work of industry for 1986 and for the first half of the current year shows that the new management methods require improvement. In connection with the unstable production of milk in a number of kolkhozes and sovkhozes some enterprises of the dairy industry are not fulfilling basic assignments for reasons beyond their control. This is having a negative effect on the material stimulation of collectives and is hindering the technical development of production and the solution of social problems.

At the present time proposals are being readied on the continued improvement of the economic mechanism within the branches of the agro-industrial complex and on their transition to complete cost accounting and self-financing. In order to improve the functioning of interrelated enterprises which produce and process agricultural raw materials it is planned to establish open indexes for them, to strengthen the integration of kolkhozes, sovkhozes and enterprises, and to create a mechanism for the simultaneous stimulation of partners within the complex with regard to the end results.

The positive changes that are taking place within the dairy industry related to the development of the material-technical base and to the increase in milk deliveries for processing have enabled us to significantly overfulfill the 1987 plan for the production of the basic types of dairy products. Many enterprises have obliged themselves to complete the plan for 2 years of the five-year plan for the 70th anniversary of Great October.

Favorable possibilities have opened up for the dairy industry in production development. Utilizing them on the basis of democratization of management, economic independence, the strengthening of initiative and creative energy of labor collectives, the branch's workers are achieving the fulfillment of the tasks of the Food Program.

Here is how production volume has grown within this branch during the last 27 years (millions of tons): 1960 — 8.2; 1965 — 11.5; 1970 — 18.8; 1975 — 22.9 (growth doubled in 10 years); 1980 — 24.8; 1985 — 29.2. In 1986 over 31 million tons were produced.

Today in the country whole milk products are being produced by about 750 specialized enterprises in cities (city dairy plants and combines), and there are also many plants that produce butter, cheese and canned milk products.

During the post-war period the technical image of city dairy plants and combines has changed radically. The basic processes were mechanized, milk is processed, as a rule, within closed flow systems and highly productive equipment is used. Thus, the productivity of cooling equipment reaches 25,000 liters per hour, of separators-milk purifiers and cream separators — 25,000 liters per hour and the capacity of milk storage capacities is 100 tons. Separators with the mechanized removal of sediment has become widespread. The transition to automated centralized washing of equipment, pipelines and automatic milk cisterns is being implemented. Here automatic lines and equipment produce 6,000-24,000 bottles per hour and 1,500-4,500 plastic and paper packages with milk per hour. Sour milk products are produced by means of a progressive reservoir method. Automatic control systems are being introduced.

The Moloko Production Association, created in Moscow in 1962, is considered to be the largest in the country. It consists of eight enterprises, including two automated plants. Each day over 6,000 tons of milk and milk products of 90 types are supplied to thousands of stores, cafes, cafeteria and other enterprises. Production, economic and marketing operations are managed by the association with the help of a large computer center. The computer determines the quantity and assortment of products on the basis of orders from the marketing network, establishes shipment routes for products and raw materials, carries out calculations with suppliers of milk and trade organizations and deals with other problems related to the work of Moscow's dairy industry.

In 1986 the Moloko association produced 2,242,000 tons of whole milk products (translated into milk terms), which comprised an average of 257.3 kilograms per Moscow resident (in 1913 this figure did not exceed 9 kilograms).

The assortment of whole milk products includes 200 products. Not another country in the world has such variety. The assortment structure is such (1986): milk for drinking — 43.9 percent of the total volume of whole milk products produced; sour milk beverages — 6.1 percent; pot cheese and its products — 12.3 percent; and sour cream and sweet cream — 37.7 percent.

In recent years, based on the scientific data on efficient nutrition as well as on economic concepts, the branch has taken a course to increase the proportion of products with a lower fat content, with good biological value, and enriched with protein, vitamins and fruit and vegetable expanders. We are speaking about milk, kefir, yoghurt and acidophilus with a 1 and 2.5 percent fat content, pot cheese and cheese curds-pot cheese products (2 and 5 percent), sour cream (10 and 15 percent) and various beverages made from whey and buttermilk. Significant growth in the output of these types of products is foreseen for the 12th Five-Year Plan.

In large cities pot cheese semi-finished products with vegetable expanders (semolina groats, rice, raisins, mandarin grits and others). Their combination with animal components enables us not only to economize on protein products but also to increase the biological value of semi-finished products. For school buffets and children's facilities pasteurized and vitamin-enriched milk and sour milk beverages are produced in packaging having a 0.2-0.25 liter capacity and pot cheese and cheese curds-pot cheese products — in 50 gram packaging. Important tasks stand before the collectives of many dairy combines where the production of liquid and soft dairy products must be organized for young children.

Despite the large growth in the output of whole milk products achieved during the years of Soviet power a number of problems have not yet been solved as relates to improving structure, enriching assortment, improving quality and most importantly — supplying the population in accordance with the norms recommended by the Institute of Nutrition of USSR AMN [Academy of Medical Sciences]. According to these norms 112 kilograms of whole milk, 8.1 of pot cheese and pot cheese products, 5.8 of sour cream and 16.4 kilograms of defatted milk should be consumed per capita annually. Actual per capita consumption of these products is significantly below the norm.

In March of the current year by order of USSR Gosagroprom a program has been confirmed for the revitalization of production in the dairy industry during the 12th Five-Year Plan and in the future. Its main goal is to modernize the material-technical base of the branch by means of the accelerated introduction of new equipment and technology and with the corresponding growth in raw-materials resources to increase the production of dairy products and increase consumption to the scientifically-recommended norms.

In 1990 the production of whole milk will increase by 8 percent, and in the year 2000 — by 28 percent (as compared to 1985). The production of milk, sweet cream and sour milk products in packaged form is to increase during the 12th Five-Year Plan by a factor of 1.6, sour cream — by a factor of 2.1 and pot cheese — by a factor of 2, which will comprise 85 percent of the volume of retail sales of these products. With this goal in mind it is planned to develop improved and progressive types of packaging materials on the basis of aluminum foil, stretchable polypropylene band, coatings of the Elekster type, combination materials of the Tetra-Brik-Aseptik type and others.

In order to improve the quality of potable milk and to increase its shelf life, to achieve growth in labor productivity and to raise the level of mechanization and automation of processes it is planned to produce up to 3 million tons of milk in sterilized or ultraviolet light-treated form. It is planned to introduce intensive processes for producing sour milk beverages based on curtailing the duration of maturation: for kefir — up to 6 hours at a temperature of 20 degrees Centigrade instead of 10-12 hours at 14-16 degrees Centigrade, for fermented boiled milk and heated milk — up to 1 hour instead of 4-6 hours. This will enable us to increase the output, in particular, of fermented boiled milk, a product in great demand, by a factor of almost 2. We must develop a technology and the corresponding equipment for the production of sour milk beverages with a long shelf life. Their proportion in total volume should equal 15 percent. On the basis of the principles of efficient and balanced nutrition it is planned to develop a technology and equipment for the production of low-fat vitaminous dairy products in a volume of up to 2.5 million tons per year in the future.

During the 12th Five-Year Plan and in the future new technologies and equipment will become widely utilized in the preparation of pot cheese with the use of ultrafiltration, electrodialysis and reverse osmosis, which will enable us to improve the utilization of milk components.

Branch workers are awaiting the effective help of scientists, designers, machine builders and chemists in solving these and other problems.

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8228

#### Improvements in the Cattle Procurement Process Suggested

18240056 Minsk SELSKOYE KHOZYAYSTVO BELORUSSII in Russian No 1, Jan 88 pp 18-19

[Article by A. S. Myshelova, candidate of economic sciences: "Uniting the Efforts of Related Industries"]

[Text]With the development of the agro-industrial complex departmental barriers between agricultural and meat processing enterprises have finally been eliminated, but as of yet there exists a lack of coordination

and there is an absence of a commonality of economic interests. The main object of disagreement is the existing order for delivering and receiving livestock and for account-keeping in this area according to weight and quality of meat after slaughter. With the existing organization of central livestock shipments the interest of parties in preserving meat products is not equal. Losses resulting from weight loss in animals en route are borne by kolkhozes and sovkhozes; procurers do not bear a material responsibility until the meat is received by them. This is why each party, acting upon branch interests, forgets about the fact that it is now a part of a single whole.

Thus, to the shortcomings of the method of delivering and receiving livestock by weight and meat quality we can add the difference between real and shipment live weight. At the same time objectively speaking with the utilization within the economic mechanism of any average norms, which also includes the norms for meat output, the deviations to one or another side are unavoidable in specific instances. And if livestock of the same live weight when delivered yields different quantities of meat and this is recorded in accounts on quota fulfillment, then no infringement of state or cost-accounting interests of enterprises exists. Here there are cases in which live weight is reduced to one denominator — real meat output. Yet no one considers it a violation when milk with the same physical weight is reimbursed differently according to butterfat content and is included in account-keeping towards the fulfillment of the plan by enterprises in its greater or lesser quantity depending on the content of the end product. Potatoes, sugar beets, flax products and others used for industrial processing are reimbursed according to the content of the end product and are made comparable, which is an important direction for integrating the economic interests of enterprises of the agro-industrial complex.

Within the meat subcomplex this kind of approach is not recognized for some reason, which is not correct. Moreover, on the question of translating the slaughter weight of livestock into live weight there exists the opinion that a continued growth in the established norms for meat output is advantageous. To convince these individuals about the mistake of such judgements it is enough to make some simple computations. If, for example, the slaughter of a young bull in the highest nutritional state weighing 400 kilograms on the hoof yields 202 kilograms of meat, with existing norms for meat output (48.4 percent) the recorded live weight will equal 417 kilograms. Of course, as there are changes in determining conditions, especially in weight categories for cattle, it is essential to perfect the norms for meat output, bringing them closer to reality but also preserving their significance as incentives regardless of whether they will be utilized on the level of agricultural or processing enterprises.

The fact that within the existing system of recorded coefficients it appears more advantageous to enterprises

to deliver cattle of a lower nutritional state is non-objectively included among the disadvantages of meat calculations. And there are cases in which agreements are made to assess cattle of the highest nutritional category at a lower level. At the same time the comparison of financial results of enterprises using inadequate coefficients for translating slaughter weight into live weight shows all of the economic groundlessness of such judgements.

From the data that has been presented we can see that in the case of a non-objective evaluation of adult livestock in a high nutritional condition as average in nutritional state, the profits per ton live weight decrease by 257 rubles; with an assessment of this cattle as low average nutritionally — by 543 rubles, as thin — by 724 rubles; in young livestock — by 257, 547 and 729 rubles respectively, although here the recorded weight increases. At the same time if the entire supplementary live weight is applied to increasing the achieved level then additional payments for adult livestock will equal 49 rubles in the first case, 91 in the second and 112 in the third; and for young animals — 25, 62, and 117 rubles respectively, which is incommensurable with losses. In this way, it is possible to artificially increase weight gain and reimbursement for it, gross production and other indexes measured with the help of the gross production index, but all of this is to the detriment of final financial results.

It is commonly known that in the process of delivery and reception, transportation and calculation at the meat combine there is a pre-slaughter holding time of animals which is unavoidably accompanied by a decrease in live weight primarily from the contents of the digestive-intestinal tract — so called natural losses. This is confirmed by the results not only of practical activity, but of experimental work as well.

Thus, the expert commission made up of representatives of interested parties and scientific institutions at the Minsk and Borisov meat combines objectively weighed 300 head of cattle and hogs and found that there was a 5.2 percent difference in the weights recorded in enterprises and then in the meat combines. A similar experiment was carried out in a number of meat combines of the Lithuanian SSR. According to the results of weighing over 2,000 head of cattle and about 4,000 hogs a difference between live weight at the beginning and end of the pre-slaughter holding period of 7 percent was established for livestock and 4.7 percent for hogs.

Of course on the path from the farm to the slaughter line in addition to natural losses there could simultaneously exist losses of tissue mass resulting from violations of conditions and norms relating to duration of reception, delivery and pre-slaughter holding time for livestock at meat combines. By these losses alone we can objectively assess the problem areas in the procurement conveyor.

But because of the absence of the necessary aforementioned methodology, meat losses on the path from farm to refrigerator are practically not determined although as we can see there is a need for this.

The experience that has been gathered through the experimental work conducted by technologists as regards losses of meat production at the sales stages attests to the fact that these losses relate primarily to the delivery of livestock to distances that are above tolerable levels from the point of view of its preservation, to the pre-slaughter holding time in meat combines, to exceeding its normative duration and to violations in primary processing technology.

According to the data of scientific-methodological sources, with pre-slaughter holding in meat combines meat losses in cattle fluctuate from 1.1 to 2.62 percent depending on individual characteristics, stress conditions, traumatization and other reasons; and meat losses from hogs — from 1.8 to 2.9 percent. When the duration of pre-slaughter holding time of livestock is over 20-40 hours meat losses reach an average of 1.2 percent, 48 hours — 2.3 percent, and 72 hours — 3.8 percent. The size of losses during shipment is differentiated according to types of livestock and distance. With the goal of the practical application of such data, it should be given the status of confirmed norms. By utilizing such norms we can determine meat losses in individual enterprises and in any group of enterprises.

At the present time BelNIIEOSKh [Further expansion unknown], together with interested parties, is developing a model in the zone of the Mogilev Meat Combine for the efficient organization of the procurement process, the efficient management of which is implemented with the help of an optimal hourly schedule of reception and delivery, centralized delivery and livestock processing. The given schedule is worked out on a monthly basis for the meat combine, for the enterprises of its raw materials zone and for the motor vehicle base with the goal of eliminating meat production losses and of the efficient utilization of special transportation by means of curtailing intermediate links and the time livestock finds itself at all stages from the farm to the slaughter line. For this the optimal hourly schedule foresees strict adherence to norms of duration of pre-slaughter holding time, delivery and reception, shipment, veterinary control, mandatory rest periods and processing of every batch of delivered livestock, as well as a precise coordination between the operations of enterprises-suppliers, the meat combines and the motor vehicle base.

The schedule foresees the well-paced delivery of livestock in the course of 1 month on the basis of the equal distribution of the monthly procurement volume by work days; the uniform requirements for specialized transport is established, and the beginning and end of every operation of the procurement conveyor is controlled with a consideration of the normative duration. The delivery of livestock for slaughter is planned in strict

coordination with the work regimen of slaughter lines and with a system in which the livestock of every subsequent trip is prepared for slaughter at the moment of completion of processing of the preceding batch, which is achieved by means of the optimal daily selection of supply enterprises and of the systematization of the order by which each delivers its livestock.

The optimal hourly schedule establishes the actions of every participant. The arrival time of transport vehicles is established for all supply enterprises, and livestock must be ready by this time. If it is slaughtered on the day of delivery, pre-slaughter holding must be carried out locally and its duration is established in the schedule. The schedule also notes the time of the delivery and reception of livestock locally and the beginning and end of its processing. For the motor vehicle base the number of daily workers working with vehicles is established, as well as the number of trips each driver makes and the total number of trips per day; the arrival and departure time at each point is established. The meat combine is given the time when livestock arrives, the duration of its stay here and the completion of processing. The success of introductory work will depend on the joint efforts of partners and this must be facilitated by a system of interrelated account-keeping among them.

In selecting a system of mutual account-keeping that best meets the interests of both parties it is essential to consider its main function, which is economic in nature. It consists of distributing the cost of the end product obtained at its final stage among the participants of integrated production in a well-grounded manner. This kind of goal is achieved through the proper relationship between the levels of procurement, wholesale and retail prices for products sold and uniform indexes for measuring these products at all stages.

In the given case meat is such a general measure. But at the same time we cannot but take into account that the process of agricultural production culminates in obtaining the live weight. In order to more fully consider mutual interests, it is evidently expedient to record in accounts for livestock both the source raw material as well as the product obtained from processing, i.e. the real live and slaughter weight simultaneously, which requires an objective determination.

From this point of view one shortcoming of the existing order of accounting for livestock by weight and quality has to do with ignoring real live weight with its resulting formal determination when livestock is sent to enterprises. With the goal of eliminating the given shortcoming, in 1988 USSR Gosagroprom plans to implement a transition to the reception of livestock locally and to reimbursement according to live weight. At the same time a new GOST will be utilized for cattle according to which the main index that determines its nutritional state will be the age and weight of the animal. In

connection with this it becomes necessary to objectively weigh the animals in the presence of representatives of both parties as a result of which the authenticity of the real live weight increases.

This solution to the aforementioned problems will enable us to systematize the proper organization of reception locally, to organize centralized shipments and processing of livestock, to improve this process and make it more economical, and to uniformly increase interest in the end results of all partners in the meat subcomplex.

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## MACHINERY, EQUIPMENT

### Spare Parts Production, Deliveries Criticized

#### Extent of Problem Described

18240062a Moscow SELSKAYA ZHIZN in Russian  
20 Dec 87 p 1

[Article by S. Vladimirov: "Debtors"]

[Text] "The harvest operations were carried out under difficult weather conditions. Owing to the fact that the machines are badly worn out, the sovkhozes, kolkhozes and repair enterprises are presently engaged in the restoration of equipment. But the work is being delayed owing to the absence of spare parts. The plants are not satisfying our needs: Vladimir Tractor Plant, the Noginsk Fuel Equipment Plant and the Rostov 10th Bearing Plant. We are seeking assistance. Deputy Chairman of the Novosibirsk Oblast Agro-industrial Committee Kaganov."

The Editorial Board acquainted the deputy chief for administration of Glavagrosnab I.I. Burnashev with the above telegram. In turn, he opened the package and disclosed its contents:

"This is the type of telegram being received. The situation is alarming. Equipment repair operations are in full swing and yet we are lacking many spare parts."

This problem has not escaped the attention of our readers. Reasonable questions are being asked by E. Yuldashev in Turkmenia, N. Filippov in Sverdlovsk Oblast, A. Prokopovich in Nikolayevsk Oblast and others:

"Why do we have such shortages in spare parts? Is it not possible to ensure that the kolkhozes, sovkhozes and enterprises of the agro-industrial complex are supplied adequately with them?"

This must be done! If not, the farms will be unprepared for their spring field work. The spare parts problem did not appear suddenly from out of the blue nor did it come as a surprise. This problem has delayed equipment repair operations in the past. And it would appear that the proper decisions should have been handed down at those times. Unfortunately however, the list of those at fault has now increased sharply. It is not possible to single out all of them. But the list for the most part includes the collectives of enterprises of agricultural and tractor machine building, the automobile industry and highway and municipal machine building. Yes and the plants of other departments have displayed negligence in their handling of agricultural orders.

Yet contracts were concluded with each collective. The nomenclature for the spare parts and the delivery schedules for them were all pointed out in the schedules. But for many these contracts were nothing more than pieces of paper that were not reinforced by proper action. What is the explanation for such lack of responsibility and lack of attention to the needs of the consumers? Today the leaders of the Altay, Kharkov and Pavlodar tractor plants of the Kievtraktordetal, Odessapochvomash, Tula Combine Plant, Rostselmash, Umanfermmash and others, in explaining the causes of the breakdown in deliveries, reason as follows:

"There are not enough workers! The equipment has become obsolete and our power capabilities are inadequate!"

Perhaps this is truly the situation. But are such approaches providing the proper solutions today? This road is paved with "objective" causes. And what must a collective do in order to fulfill its contract? What reserves for production growth have been placed in operation?

We have facts at hand which indicate the use of a truly state approach in the matter of responsibility and obligations. The Kirovograd Krasnaya Zvezda Plant, the Kherson Combine Plant Production Association and the Dnepropetrovsk Combine Plant — these are collectives of workers which enjoy a fine reputation among the consumers and which ship fine quality products strictly according to the established schedules.

During a recent conference in the CPSU Central Committee, dedicated to the problems concerned with providing the kolkhozes and sovkhozes with a stable supply of the needed spare parts and repair materials, mention was made of a priority approach for logistical supply for agriculture. The situation must be corrected. Today we must thoroughly develop our contracts such that they are viewed as being mandatory documents for each plant collective. Spare parts must be delivered to the farms strictly in accordance with the schedules and in keeping with the nomenclature indicated in the contract. This will make it possible to accelerate the course of the repair operations and to prepare for spring in a fine manner.

**Spare Parts Shortages in Kuban Region Discussed**  
*18240062a Moscow SELSKAYA ZHIZN in Russian*  
*24 Dec 87 p 2*

[Interview with I. Shatapov, deputy chairman of the kray agro-industrial committee by Yu. Semenenko in Krasnodar Kray: "Nomenclature Deficit"]

[Text] Similar to other regions of the country, the Kuban is experiencing great difficulties in the repair of machines and equipment owing to spare parts shortages. What is the solution for this situation? Our correspondent Yu. Semenenko discussed this problem with the deputy chairman of the kray agro-industrial committee I. Shatalov.

[Question] Ivan Mikhaylovich, how were the requests for spare parts satisfied this past year?

[Answer] Judge for yourself. In the case of tractor parts, our orders were fulfilled by 79, automobile parts — by 72, agricultural machine parts — by 82 and parts for electrical equipment — by 90 percent. Parts and units are being supplied by 1,944 enterprises of various ministries and departments and in each one there are dozens of debtors. One reason for this situation — the dictates of production with regard to the consumer that developed over the course of decades. We place orders for certain items on the basis of norms and the plants supply other items. And there is one factor that is especially alarming — almost no positive improvements have been noted in recent years. In many instances, the situation has become even more aggravated, despite the fact that an intermediate element —Goskomselkhoztekhnika — has been eliminated.

Over the course of a number of years, sprayers for fuel equipment have continued to remain in short supply. For example, almost 60,000 of them were required this year in accordance with the norms and yet only 25,400 were allocated from the funds. We send telegrams and letters containing humble requests and we have sent out messengers to the Vilnyus Fuel Equipment Plant and all of our appeals are rejected. Alas, this year the supplies available are more than two times less than the requirements.

The schedules for deliveries of parts are systematically being violated by the Chimkent Propeller Shaft Plant, the Borisovka Car and Tractor Electrical Equipment Plant, the Yaroslavl Motor Plant, the Lisichansk Industrial Rubber Goods Plant, Altayselmash and others. The number of cylinders and distributors sent to us by the Chuguev Fuel Equipment Plant, the Vladimir Tractor Plant and the Moscow and the Melitopol plants is two times less than the number required. But the Michurinsk and Lebedin plants for car and tractor spare parts have become record-holders in this regard. Instead of the 12,120 sets of piston rings planned for this year, they shipped only 3,780. How is it possible to repair the

engines? And in accordance with the plans for 1988, the number of rings to be shipped will be more than three times less than the number required.

Unfortunately, the list of shortages is considerable. Moreover, many enterprises are carrying out their obligations this year in a worse manner than in the past. They are shielding themselves against the needs of the agro-industrial complex on the basis of reasoning concerning the need for highly specialized operations, complete cost accounting and self-financing. For this same reason the nomenclature is being reduced and more attention is being given to the plans for shipping parts and units. Beyond any doubt, a change is needed over to the new managerial methods, but not at the expense of one's partners!

A number of enterprises, while concealing themselves behind the slogan of restructuring, are following the wanton path of producing parts not in accordance with a planned assortment but rather based upon sales or gross volume.

Rather than individual parts, many enterprises are striving to produce entire units and sets and strangely enough they are finding support in USSR Gosnab. This vice is especially pronounced in plants which are engaged in producing equipment for the food and processing industry. They ship costly assemblies in instances when only 2-3 parts are needed. As a result, there are overexpenditures for repair work and resources are immobilized.

[Question] Here an important role is played by Gosagroprom [State Agro-industrial Committee] as a holder of capital. Indeed, the immobilization of material values occurs as a result of their inefficient distribution. What is being done to overcome this shortcoming?

[Answer] We are undertaking measures aimed at converting over to wholesale trade. Towards this end, we have established three categories for the spare parts and materials. The first group includes goods which are readily available. Commencing with the new year, they will be sold practically freely. The second group includes parts and materials which are in short supply. The plans call for them to be distributed using the old method and also electronic computer control equipment. In addition, a definite effect will be realized from the introduction of so-called order books containing the requests by each collective and their fulfillment in terms of the nomenclature. In the process, the wages for the workers of a team engaged in this sphere will be made dependent upon the requests being carried out. The third group will consist of goods which are needed on a one-time or infrequent basis. They will be made available directly on the basis of requests. This is also an element of wholesale trade. Unfortunately, its introduction is in conflict with an old bank instruction that embodies an excessively low norm for part supplies.

[Question] And what can you say regarding the quality of the spare parts being made available to the agro-industrial complex?

[Answer] We organized input control among ourselves and we are carrying out a random check on the units and parts being received. Approximately 10 percent of the products are being rejected. An even greater amount of rejected products is being noted at the above-mentioned Michurin plant, the Samarkand Krasnyy Motor Plant and the Stavropol Piston Rings Plant. Thus the question should be asked: is no work being carried out by the workers attached to departmental OTK's [technical control departments], the organs of state acceptance or by comrades from the ministries? The time is at hand for gospriyemka [state acceptance] to encompass all enterprises associated with the agro-industrial complex, since at the present time many of them are suffering from mistakes made by others.

[Question] Are you nevertheless overcoming the shortage? Indeed, the equipment repair work in the kray is generally being carried out in a satisfactory manner.

[Answer] We are not sitting with arms folded, but rather we are organizing the production of a number of parts, including deficit sleeves, packing and gaskets. Three departments for the production of small spare parts are being introduced into operations and we are improving the capabilities for the restoration of parts. At the present time, more than 250 types of units and parts are being given a second life in workshops and repair plants.

We are not tolerating those who fall behind. We are enlisting the services of Gosarbitrash [State Arbitration Commission] and we are employing fines and sanctions. But it must be confessed that this is an extremely weak measure. Workers who are at fault do not pay these fines out of their own pockets. At times it is necessary to send vehicles over distances of from one and a half to two thousand kilometers in order to obtain a particular part. One such trip costs from 300 to 500 rubles. Powerful levers are needed for bringing influence to bear upon the suppliers. We are making greater use of commission trade, which calls for the free sale of goods.

[Question] And what is your view regarding the organization of firm services for clients as is being done at KamAZ and VAZ?

[Answer] I believe that this path must be followed by all machine builders. Only then will we be able to solve those problems which are troubling many at the present time! I view this as a real possibility for improving the reliability of the equipment — it will become unprofitable for the associations and leading enterprises to produce poor machine and spare parts. Instead of a gross value, we would have a true ruble that would serve to bind together the common interests of a worker, an engineer, a designer and a plant director — it is this that must be viewed as being of paramount importance to logistical support for the rural areas.

#### Strict Control Established

18240062a Moscow SELSKAYA ZHIZN in Russian  
16 Mar 88 p 2

[Follow-up commentary: "Strict Control Established"]

[Text] Minselkhozmash [Ministry of Tractor and Agricultural Machine Building] has discussed the articles entitled "Nomenclature Deficit" and "Debtors," which were published in SELSKAYA ZHIZN in December of last year. As reported by V. Khaydukov, chief of the Main Production Administration, the plan for the production of spare parts was fulfilled by 103 percent last year, with 54.2 million rubles worth of such parts being produced in addition to the usual amount.

However, many of the branch's enterprises — Noginsk Fuel Equipment, the Altay, Vladimir, Pavlodar and Kharkov tractor plants, the Rostselmash Production Associations and others — did not fulfill their task.

The ministry has been criticized quite fairly with regard to the quality of certain types of spare parts being produced by the Samarkand "Krasnyy Dvigatel" Plant and the Stavropol Piston Rings Plant.

During an expanded meeting of the board, a review was undertaken of those questions associated with carrying out the production program and the quality of the products being produced by the branch's enterprises. The leaders of the mentioned enterprises were subjected to stern criticism for having tolerated miscalculations and unfinished work. Daily control has been instituted over the production of spare parts.

## POLICY, ORGANIZATION

### Gosplan Deputy Chairman on Capital Investment in Construction

18200100a Moscow EKONOMICHESKAYA GAZETA  
in Russian No 2, Jan 88 p 4

[Article by V. Serov, deputy chairman, USSR Gosplan, under rubric "The Law Governing the Enterprise in Action": "Investment Independence"]

[Text] In investment policy, as in a mirror, one sees reflected the chief economic tasks confronting our country at each specific stage in its development. That is how it was during the period of industrialization, when the material-technical base of socialism was being created. That is how it was during the years of the Great Patriotic War, when it was necessary to put the entire economy on a wartime basis within the shortest periods of time. And that is how it was during the postwar restoration of the national economy and the subsequent five-year plans, when, by means of a dynamic and flexible investment policy, it proved possible to eliminate the disproportions in economic development and to resolve many large-scale social and economic problems. However, over the past 15 years the effectiveness of capital investments has been falling constantly, the increase in capacities has failed to guarantee the necessary increase in the production of output, and the existing production apparatus has been used ineffectively.

Today we face the task of fundamentally changing that negative tendency. The plan for the 12th Five-Year Plan stipulates not only the stopping of the reduction of the effectiveness of capital investments, but also the guaranteeing of an increase by 16 percent. What measures will make it possible to carry that out? First of all, a change in the reproduction structure of capital investments. The share of expenditures for the technical re-equipping and remodeling of existing enterprises is supposed to increase during the five-year period from a minimum of 38 to 50 percent. The volumes of withdrawal of fixed production assets will be approximately doubled.

The overall increase in capital investments in 1988 will constitute 213.8 million rubles, as compared with an average annual figure of 125 million rubles in the past five-year plan.

In addition to the economic measures, measures of an organizational nature have also been carried out. Every republic now directly administers the construction production on its territory. The collective contract has become widespread everywhere. All this has made it possible to change somewhat the situation in capital construction. For example, labor productivity during the past two years increased by 9.7 percent, whereas during the entire past five-year plan it increased by 13.7 percent. The average annual growth rate for the volumes of contract operations in the 11th Five-Year Plan came to 2.7 percent, and during 1986-1987, it was already 5.7 percent. And what is especially important is that the rates of activation of fixed assets have

been outstripping the growth rates for volumes of construction-and-installation operations, although, as previously, the planned assignments for activation of fixed assets are not yet being fulfilled.

I would like to dwell in more detail on what actions have been planned to support and develop the first positive outcroppings in capital construction.

### Both Rights and Responsibility

Without a doubt, an important role must be played by the increase in the independence of the enterprises and associations in investment activity, which increase was afforded to them by the Law Governing the Enterprise. The technical re-equipping, remodeling, and expansion (except for especially important and large-scale ones) of plants and factories will be carried out now at their own expense and at the expense of bank credit. As for the volume of capital investments, it will depend directly upon the results of the collective's basic activity. It is has earned money, it can build. This procedure will help to cure the "disease" that has plagued construction for a long time — the tremendous investment demand "from below" and the constant decrease in the effectiveness of investments as a result of the excessive infatuation with new construction.

In the plan for 1988 the absolute extent of capital investments for production construction at the expense of enterprise funds constituted 47.7 billion rubles, or 35.3 percent of the overall volume of state capital investments. In the next few years that share will increase to 50-55 percent. One-third of the fixed production assets next year will be activated at the expense of those funds.

How does one guarantee the optimal combination of the rights granted to the labor collectives by the USSR Law Governing the State Enterprise (Association), and the interests of the state with respect to the creation of production capacities for producing the most important types of output? The experience of developing the plan for 1988 indicates that the enterprises in a number of ministries reduced the assignments of the five-year plan for activation (increase) of capacities for individual types of industrial output at the expense of the technical re-equipping, remodeling, and expansion of existing production, although those assignments had been established on the basis of their recommendations for the five-year plan. The deviations proved to be considerable. We have analyzed the reasons.

In many instances the design resolution was linked with the need to reconsider an obsolete design. And that was not without justification. The ministries and departments carried out an expert evaluation of 904 designs for the technical re-equipping and remodeling of existing enterprises with an estimated cost of more than 4 million rubles. One-fourth of them were returned for modification. A random check of the technical level and quality of 35 designs, which check was organized by USSR Gosstroy and USSR GKNT [State

Committee for Science and Technology], indicated that in 16 of them (46 percent) the design resolutions failed to meet the present-day requirements of scientific-technical progress.

The second reason for the reduction in the activation of production capacities was the shortage of progressive, highly productive equipment and the fact that it had been delivered without all of its components or tardily. In 1987, for example, enterprises in USSR Minpribor [Ministry of Instrument Making, Automation Equipment, and Control Systems] refused to purchase equipment valued at a total of approximately 140 million rubles because it was of poor quality.

An analysis of the work performed by enterprises in a number of ministries and departments under the new management conditions has also revealed certain alarming tendencies in the use of decentralized capital investments. While welcoming the expansion of independence, people sometimes forget that it is inseparably linked with an increase in responsibility. It is precisely that second part that is somehow overlooked. And it must be admitted that that was felt in the course of developing the plan for 1988. One saw an obvious economic paradox evolving.

On the one hand, the state has guaranteed to provide the enterprises with material resources for capital construction and the creation of capacities, and, on the other hand, the enterprise fail to consider themselves to be responsible for the effective use of those resources and reject the pledges that they have previously taken upon themselves. That, of course, is inadmissible.

For example, at the AvtoVAZ Association it was deemed to be unmandatory to activate in 1987 the production capacities for the production of passenger cars in the volume that had been stipulated by the plan, although the necessary resources had been allocated. And this was the reason: the association had not provided for the manufacture of special technological equipment for creating those capacities.

Under the new management conditions, when only half the capital investments remain centralized, there arises the problem of the most effective use of them.

#### New Administrative Levers

The new economic mechanism has required the fundamental restructuring of the practice of planning the construction operations to be fulfilled by the contract method and the in-house method. The control figures that will be reported to the organizations will now include the following indicator: the volumes of contractual construction-and-installation operations in monetary terms for the conclusion of contracts.

Thanks to the contract agreements that have become standard practice, the new indicator has a specifically addressed assignment. One can no longer build up the necessary volume of operations in whatever production

areas one wants, as used to be the situation rather frequently. One can include in the offset only those operations that were carried out in conformity with previously established schedules. Thus it is impossible, for example, instead of building one house, to lay the foundations at three different sites and receive complete payment for all of them. Subsidiary operations will simply not be paid for.

The economic levers that orient the construction organizations toward the attainment of the final results have become an inseparable part of the new economic mechanism. They include not just the previously described indicator. It has also been established that the interim payment for operations that have been fulfilled is payment of an advance and is paid within the limits of 95 percent of the estimated cost of the project, and the final settlement is made after the project has been turned over for operation. The funds that are formed at the expense of the reduction in the cost of construction, as compared with the contract price, once again can be used in full measure after the completion of all the operations at the project. Until that time, only 60 percent of those funds are put at the disposal of the construction organization.

In the event of activation of production capacities ahead of schedule, the customers transfer to the contractors half the enterprise's profit that has been stipulated by the plan for the period by which the construction period was reduced, as compared with the standards. In the even of fulfillment by the construction-and-installation organizations of the plan for activation of all the production capacities and projects, the planned total of the material-incentive fund is increased by 15 percent.

But in the event that the organizations fail to meet the established deadlines for activation, financial sanctions are applied both to the contractor and to the customer. The customer is required to pay into the budget as much as 3 percent of the value of the unactivated basic production assets, and the contractor is required to pay up to 3 percent of the value of the construction-and-installation operations for the unactivated production projects.

But the factor that is becoming the basic indicator for evaluating the activity of the construction organizations is the fulfillment of the pledges that have been taken on the basis of the contracts. The first results of the application of this serious of measures have also manifested themselves during the development of the plan for the current year. The customers have begun to taken a more responsible approach to determining the activation deadlines and for providing all types of resources to the capacities scheduled for activation in the next reporting period.

#### Combining Democracy and Centralism

The new economic mechanism presupposes the intensification of centralized planning and the simultaneous expansion of the rights enjoyed by the councils of ministers of the union republics and the local soviets of people's deputies. How will this be carried out in the practical situation?

The increase in the role played by the center will be provided chiefly by way of the system of state production orders. In construction these will be assignments to the contract organizations for the activation of production capacities for the products that are of greatest importance to the national economy, which are approved by the USSR Council of Ministers. Other assignments that are in accordance with a state production order, but which are determined by the councils of ministers of the union republics, are the assignments for activation of housing, hospitals and clinics, schools and children's preschool institutions, and other projects intended for social and everyday purposes.

The role played by the center has been growing substantially also in the planning of the economic indicators for the activity of the construction workers, such as profit and the increase in labor productivity. Under the new conditions, the economic quotas established "from the top" are acquiring exceptionally great importance. The quota for formation of the production, science, and technology fund, the social development fund, and the material incentive fund, the quota for deductions to be paid from profits into the budget, and the quota for wages paid to workers engaged in construction regulate in a centralized manner the economic proportions in the national economy. However, since they are stable for the five-year period, they provide an expanse for the creative participation of the labor collectives in the implementation of the plans.

As was previously stated, the volume of contract operations is now reported to the construction organizations as a computed indicator. It is determined for concluding the contracts, and also for determining the economic indicators and quotas. In addition, prior to the changeover to the wholesale trade in building materials, it is necessary for determining the size of the funds for the basic building materials. But the volumes of contract operations are determined by USSR Gosplan only for construction sites with a state production order. The remaining part of the program is determined independently by the contract organizations jointly with the customers.

What, then, are the rights enjoyed by the republic-level and local administrative agencies in the area of construction planning? There are several such rights: the approval by the contract organizations of the assignments for activation of housing and projects intended for cultural and everyday purposes; the independent determination of the volumes of the contract operations for projects in the republic management; the drawing up of the balance sheets for the capacities of the contract organizations on the basis of the territory; the elaboration of measures to develop them; and many others. Together with the workers at the planning agencies of the

union republics, we are currently analyzing the existing procedure for elaborating the draft versions of the plans, and are attempting to make this process more democratic.

Another typical feature of the planning of construction production at the present-day level is the fact that, under the conditions of the rejection, in principle, of the practice that has developed for the annual elaboration and approval of state annual plans for the economic and social development of USSR and the transference of the functions of the yearly planning directly to the enterprises and organizations, USSR Gosplan has been given the responsibility of developing the plans for contract operations for the appropriate year. They will be drawn up on the basis of the complete economic analysis of the recommendations and refinements that have been submitted by the USSR ministries and departments and the councils of ministers of the union republics for determining the assignments of the five-year plan for the forthcoming year with a consideration of the new tasks and the changing economic conditions, as well as the concluded contracts for capital construction. It has been deemed desirable, in addition to the contract form of construction, to stipulate as the basic form in the plans the necessary expansion of the in-house method of construction for fulfilling operations involving the technical re-equipping, remodeling, and expansion of existing enterprises, as well as the development of the material base of their social sphere.

In conclusion I would like to mention the following. During the period of many years when the state of affairs in capital construction was becoming increasingly worse, when the construction workers and the customers were accused (and justifiably so) of many of our misfortunes, the impression was formed that nothing in this area could be changed for the better. Currently all the objectively necessary prerequisites have been created for achieving a fundamental change in capital construction. There has also been a change in the attitude taken to it as to a hopelessly lagging link in the national economy. This has been eloquently testified to by the results of the past two years.

What is important now is not to lose the rates that have been built up, and to guarantee, by the common efforts of the workers in the planning and construction agencies, the banks, the customers, and the contractors, and with a consideration of the requirements of the Law Governing the Enterprise, the fulfillment of the assignments for activation of projects that have been planned for the five-year period, and by the year 1990 to break in the new economic mechanism in such a way that it will subsequently guarantee our country's dynamic development.

## POLICY, ORGANIZATION

### Tsentrosoyuz Chief on Consumer Cooperative Restructuring

18270032a SOVETSKAYA POTREBITELSKAYA KOOPERATSIYA in Russian No 1, Jan 88 pp 2-11

[Report from Chairman of the Board of Tsentrosoyuz P. S. Fedirko: "On the Work for Restructuring the Activity of Consumers' Cooperation and Improving Its Organizational Structure in Light of the Decisions of the June (1987) Plenum of the CPSU Central Committee"]

[Text] The party Central Committee at the October (1987) Plenum, the speaker said, analyzed the course of restructuring deeply and comprehensively and summed up the results of the revolutionary transformations. The overall conclusion was this: we are experiencing a turning point. The first stage in the work for restructuring has basically been completed: the stage of developing the new party course and the creation of its ideological-theoretical and organizational platform. The main thing now is practical implementation of the program that has been earmarked.

As was emphasized at the Central Committee Plenum, the next 2-3 years will be decisive and in a certain sense critical because it will be necessary simultaneously to solve large-scale problems in the economy, the social sphere, the restructuring of state and social management, ideology, and culture.

To do this it is necessary to increase efforts in all areas of work. And the way the subsequent restructuring proceeds will depend largely on how skillfully and energetically the actions are during these years.

Restructuring in consumers' cooperative is organically linked to key problems of the country's development: democratization of social life and a radical economic reform.

The growing role of cooperation during the period of restructuring was reflected in the decisions of the 27th Party Congress and subsequent plenums of the CPSU Central Committee. "It is necessary, comrades," said General Secretary of the CPSU Central Committee, M. S. Gorbachev "to resolutely overcome the fluctuations in the attitudes of the cooperative movement which have existed in the past and are still to be observed today. Cooperation has not only not exhausted its possibilities, but has great prospects."

These principal points were noted in the decrees of the CPSU Central Committee and the USSR Council of Ministers, "On Measures for Further Development of Consumers' Cooperation," "On Improvement of the Economic Mechanism for Management in the Country's Agroindustrial Complex" and "On Immediate Measures for Acceleration of the Solution to the Food Problem in Keeping With the Provisions of the June (1987) Plenum

of the CPSU Central Committee" and they were also reflected in documents concerning the development of cooperation in the sphere of production and services.

But in fact there has been no radical restructuring in the work of consumers' cooperation. The tendencies that have taken form over the years to limit the independence of cooperative organizations and their economic initiative and enterprising are being overcome slowly and there has not yet been a real turn toward economic methods of management.

Many cooperative members have become accustomed to bureaucratic work methods and frequently manifested desire to hide behind all kinds of instructions and avoid solving economic problems. And yet V. I. Lenin saw in cooperation a force that was capable of "gathering together dispersed commodity values and giving birth to the new," providing for "rapid, correct and inexpensive distribution of products," "acting... incidentally is the most important factor in the struggle against bureaucratism."

The Tscentrosoyuz board considered it necessary to bring up for discussion of the council the question of the work of consumers' cooperation for restructuring so that at this present turning point it can determine more clearly and concretely the measures that would make it possible to take maximum advantage of the considerable economic potential of cooperative organizations and the great possibilities that lie in their democratic nature and give a new impetus for the creative activity of cooperative members.

### Immediate Tasks for the Modern Stage of Restructuring of Consumers' Cooperation

Operating in the new atmosphere that was established after April 1985 and relying on great support from the state, cooperative organizations achieved certain positive results. In 1987 the volume of procurements of agricultural products from the population increased by 28 percent as compared to 1985, the production of foodstuffs—by 20 percent, and the sale of their own products by public catering enterprises—by 14 percent.

At the same time, as was noted at the June (1987) Plenum of the CPSU Central Committee, the possibilities of augmenting commodity resources through production and procurement activity of consumers' cooperation are being poorly realized. There are many complaints about this. The system is slow at changing and much of that which could be procured from the population and delivered to the consumer through cooperative organizations is simply going to waste.

There are serious shortcomings in the organization of trade. Frequently the population is poorly provided even with goods that are plentiful, many trade enterprises do not have the proper order, and the art of service is poor.

#### 44 CONSUMER GOODS, DOMESTIC TRADE

During 10 months of this year the plan for retail commodity turnover was underfulfilled by 4.4 billion rubles, and not including alcoholic beverages—by 1.8 billion rubles. No energetic measures were taken for radically improving the structure of retail commodity turnover. They did not provide for the fulfillment of a number of assignments for procuring from the population vegetables, fruits, vegetable oil, or dried fruits during the first 2 years of the five-year plan or for the production of fast-frozen fruit and vegetable products and potato products. Far from everything is in order with respect to the startup of many objects of capital construction. There are still many organizations in this system that operate at a loss, and they have not completely eradicated extravagance, theft, and inefficiency, which are incompatible with the spirit of restructuring.

Many republic and oblast consumers' unions have not engaged actively in the restructuring.

At the June Plenum of the CPSU Central Committee the situation in Armenia was criticized. The proper conclusion should have been drawn from this criticism by the chairman of the board of the Armenian Consumers' Union, Comrade Akopyan, but this was not the case.

In 1987 the consumers' union did not fulfill the plan for commodity turnover in a single month, it was bound up in debt, and it was repeatedly saved from bankruptcy, but the level of management remains extremely low.

Recently at a meeting of the Tsentrosoyuz board they considered the question of the course of restructuring in such a large oblast consumers' union as Rastov (Chairman of the Board—Comrade Lashchev). No appreciable positive changes can be seen in the work of this consumers' union either. Here too they are failing to fulfill the plans for commodity turnover, the procurement of a number of agricultural products and raw materials, and the output of individual goods at many cooperative enterprises. With respect to a number of areas the consumers' union not only has not increased its work but has even lost the positions it had attained previously.

The Tsentrosoyuz and many organizations of consumers' cooperation had not yet been able to fully take advantage of the conditions created by the new management mechanism in the agroindustrial complex and the decrees of the CPSU Central Committee concerning an accelerated solution to the country's food problem.

If new approaches are becoming more and more appreciable in agriculture lately—intensive technologies, the collective contract, and new forms of organization and stimulation of labor are being introduced—the matter of procurements and processing of agricultural products in consumers' cooperation are being carried out according to old technology.

While there are 49,000 kolkhozes and sovkhozes in the country the number of universal positive receiving and procurement points barely exceeds 10,000. True, there are seasonal points. But, as a rule, these are primitive structures with extremely limited functions.

There is a critical shortage of storage bases. With an increase in the volume of procurements of agricultural products, capital investments in the development of the material and technical base of this important branch under the 11th Five-Year Plan were less than under the 9th.

The underestimation of the procurement sphere and the processes of inertia were also reflected in the fact that the money deposited in the funds for the development of the material and technical base for procurements and this, as we know, was set in the amount of 3 percent of the volumes of procurements and sales of agricultural products in urban cooperative trade, as a rule, are being underutilized, and by considerable amounts. Under the 11th Five-Year Plan, for example, these funds amounted to 700 million rubles but 212 million rubles less were used. And this tendency is not changing under the current five-year plan.

The situation is no better in the processing industry. During 1966-1970 cannning plants were constructed with a capacity of 530 million conventional cans a year, and under the 11th Five-Year Plan—120 million conventional cans.

The main thing here is not only that the rates of development of the processing branch have been reduced, but the very direction of this. A network of large and medium-sized cannning plants have been created which operate basically on planned raw material and actually duplicate the work of enterprises of state industry. Our enterprises are prepared to process hundreds of thousands of tons of tomatoes each year but they are poorly suited for processing small batches of less widespread, wild, or other kinds of local raw material.

The lack of a clearly developed concept of the development of the processing industry has led to a situation where its branch structure is as though "preserved" at the level of the 1960's and it has not undergone any changes in recent years. It has ended up separated from those priority directions that were taken in agricultural production and procurement activity.

In the processing industry there has been no development of the production of semimanufactured products or prepared dishes for utilization at public catering enterprises and sale through the trade network.

The volume of the simplest processing of fruit and vegetable products such as fermentation, salting, soaking, and drying has decreased in recent years.

One will not be surprised about all this if one takes into account that approximately half of our rayon procurement offices do not even have the simplest shops or points for processing agricultural products. They have fallen significantly behind the development of procurement and, the main thing, their possibilities of expanding capacities for initial processing of livestock.

There is no doubt, P. S. Fedirko emphasized, that acceleration of the development of public production is a solid basis for solving the food problem in the country. It also serves as a good base that makes it possible to realize the possibilities of private subsidiary farms of the citizens more fully.

But this considerable potential is still being poorly utilized. Of the overall volume of commodity output from private subsidiary farms organizations purchase only 61 percent of the meat, milk—only 2 percent, eggs—25, potatoes—46, vegetables—52, and fruits—38 percent.

At the present time there are 47,000 gardening and orchard societies in the country. They produce 700,000 tons of fruits a year, but we purchase only 50,000 tons. Of the almost 1 million tons of vegetables and melon crops produced in gardens and orchards we purchase only 20,000 tons. Of course, people use a large proportion of the products for private consumption, but there are also many who wish to sell surplus products to cooperative members. And the only reason for the numerous complaints from the population concerning refusals to accept the products they have raised is our inefficiency.

We are now speaking not only about increasing the proportion of resources that are assimilated, but also most actively stimulating the production of meat, potatoes, vegetables, fruits, berries and other agricultural products on private subsidiary farms of the citizens and collective gardens and orchards.

It is necessary to overcome the passivity and inefficiency of our organizations in the utilization of their extensive new rights envisioned by the decree of the CPSU Central Committee and the USSR Council of Ministers No 358 of 13 March 1986, "On Improvement of the Economic Mechanism for Management in the Country's Agroindustrial Complex." We are speaking about purchases at agreed upon prices of up to 30 percent of the planned volume of fruit and vegetable products. In places where poor relations between consumers' cooperation and the kolkhozes and sovkhozes are actually arranged on a businesslike basis this right is being realized successfully. But, unfortunately, this cannot be said about many regions of the country.

What measures are suggested in order to radically change the existing situation and sharply increase the role of consumers' cooperation in enlisting additional food resources?

A key unit in the restructuring of the procurement-processing activity of consumers' cooperation is the creation in rural areas of comprehensive procurement-processing enterprises of rural cooperative procurement industries.

These enterprises would include universal receiving and procurement points with refrigeration capacities, small points for holding and slaughtering cattle, premises with technological equipment for the simplest processing of products—fermentation, salting, soaking, marinating, and drying, and in individual places also capacities for processing smoked and sausage items. And in places where the conditions allow or, more precisely, where there is a need, in rural cooperative procurement productions it is necessary to organize the production of bakery and confectionery items. They should also take responsibility for rendering all kinds of services to the rural population.

It is necessary both to create rural cooperative procurement productions on the basis of existing comprehensive receiving-procurement and processing plants and to organize new facilities for procurement, storage and processing. Now in conjunction with the consumers' unions a program has been earmarked for creating 26,000 rural cooperative procurement productions. This will be an appreciable step along the path to restructuring procurement and processing activity.

In order to accelerate the implementation of the earmarked program it is quite realistic in many regions to resolve the issue of having the kolkhozes and sovkhozes allot standard two-apartment buildings for this purpose. Around the rural cooperative procurement productions it would also be expedient to create a network of small cooperatives of citizens for procurements and processing of agricultural products, the production of confectionery and bakery items, and so forth.

The idea behind this issue is this: to bring products as close as possible to rural residents so as to bring more commodity products in and at the same time develop the reverse process through offering rural workers the possibilities of obtaining food products from us in processed form as well as other goods and services.

The Moldavian Consumers' Union (Comrade Melnik) took a businesslike approach to drawing up the program for the development of the procurement and processing complex. In order to create procurement enterprises on each kolkhoz and sovkhoz it is planned to acquire 310 stationary receiving-procurement points, to rent 225 premises, and to construct 30 new universal points. This is a feasible program. In order to implement it capital investments are being allotted in the sum of 5 million rubles, and as a result of this the annual volume of procurements should increase by 40 million rubles.

## 46 CONSUMER GOODS, DOMESTIC TRADE

These problems are being solved specifically in the Kazakh and Lithuanian republics. Especially valuable is the fact that these programs were developed in conjunction with Soviet and party agencies and in a number of cases envisioned joining the efforts of consumers' cooperation, the Agroprom, and the kolkhozes and sovkhozes.

In the near future we must complete the process that has already been started of restructuring the procurement-processing complex at the rayon level as well and transform rayon procurement offices into associations for procurements and processing of agricultural products.

In each rayon cooperative procurement production it is necessary to have, taking local conditions into account, vegetable and potato storage facilities, fruit storage facilities, shops for processing fruit and vegetable and wild products, livestock slaughtering points, mushroom preparation points, container enterprises, and fattening points.

Soon, the speaker said, it would be correct for us to set the task of creating in each rayon capacities for producing sausage items and smoked items so as to supply these products to city and rural residents. Also at the rayon level our work should be augmented by the activity of cooperatives of citizens in the sphere of production and services.

In oblast, kray, and republic consumers' unions it is necessary to have a network of procurement and sales bases with processing shops, refrigeration facilities, storage facilities, and canning and vegetable drying plants. It will be necessary to carry out reconstruction and technical reequipment of existing processing enterprises and to create a good base for storage for developing city cooperative trade and strengthening our positions on the kolkhoz markets.

And of course, at the level of Tsentrinosoyuz, it seems to us, it is also necessary to have bases for concentration with processing shops for developing interbranch and interrepublic cooperative trade and supply for firm stores of Moscow and other cities.

Today we are relying on the development of the material and technical base and on bringing its lower level closer to rural residents. But still we must not forget that the success in this matter is decided by man, specific people who are interested in the results of their labor.

I should like to recall once again Lenin's idea to the effect that the growth of production can be provided through personal interest, through the interest of specific people and, of course, not without the help of enthusiasm. And this means that just as in agriculture it is necessary to open up a broad path for the collective, family contract and new forms of payment and organization of labor.

Our system has many examples in which involved, intensive labor has brought great results. In Stavropol Kray, for example, the brigade of procurement workers headed by Lyuvov Aleksandrovna Lyuta serves the Levoberezhnaya part of the village of Krasnogvardyeyskoye. In 10 months of 1987 the brigade purchased from local residents 89 tons of meat and 24 tons of milk, and a considerable quantity of other home-grown products worth an overall amount of almost 300,000 rubles. The people earn good money—310 rubles a month. They work without keeping track of time. The advantages for everyone: for owners of private subsidiary farms, their consumers, the cooperation, and the procurement workers themselves.

The brigade contract is being actively introduced by cooperative members of Cherkassy Oblast. Here they have attentively studied the possible resources of agricultural products on all the private farms and concluded 260,000 agreements for purchasing. Cattle are raised on private farms for consumers' cooperation under the family contract.

The application of the brigade contract is extremely effective on many fattening farms of our system. And the Kalinkovochskoye subsidiary farm of the Belorusskiy Consumers' Union, for example, a brigade consisting of three people headed by Alla Yevgenyevna Mironovich handles 270 head of hogs. The average daily weight gain here is 460 grams and the production cost of 1 kilogram of pork is 1 ruble, 40 kopecks. In 10 months the brigade achieved 64 tons of weight gain of meat and 25,000 rubles in profit. Moreover, the profitability amounted to 28 percent while the average for the Belkoopsoyuz does not exceed 4 percent on the subsidiary farms.

I should like to discuss briefly such an important matter as the procurements of wild fruits and berries. In 1977 consumers' cooperation purchased about 95,000 tons of them, and in 1986—49,000 tons or a little more than half as much. This reduction is mainly in the Russian and Ukrainian Consumers' Unions.

At the present time the situation with respect to the assimilation of resources of wild products is this: in rayons of the European part of the USSR they are assimilated by approximately 60-80 percent, and in rayons of Siberia and the Far East—10-15 percent. The consumers' cooperation has essentially curtailed the procurements of wild fruits and berries and also the hunting of wild animals in many regions.

First most radical measures are needed here. It is also suggested that a radical reorganization be conducted in the system of cooperative wild animal farms and that the economic life be activated in many procurement organizations even though they were operating successfully previously. You must not allow a decline in the development of wild animal farms, which are economically advantageous both for consumers' cooperation and for the state as a whole.

## 47 CONSUMER GOODS, DOMESTIC TRADE

In the system it is necessary to wage the most resolute battle against losses of agricultural products during the process of procurement, storage, transportation and sales, and these losses reach immense amounts—up to 20-30 percent of the overall volume of output. The sources for reducing these losses are well-known.

The crucial nature of the food problem requires the immediate adoption of other measures as well. We can no longer put up with the obvious underestimation in certain republics and oblasts of the role of internal resources in the food supply for the population.

As was noted in the materials of the scientific and practical conference on organizational and economic problems of further development of the country's agro-industrial complex, in order to provide for a considerable improvement of supply of the basic food products for the Soviet people in the next few years, it is necessary in 1988-1990 to increase the production of meat per capita by no less than 7 kilograms while in 1985-1987 the increase amounted to 2 kilograms. The per capita consumption of vegetable oil will have to increase by 5.7 kilograms as compared to 0.4 kilograms in preceding years, fruits and berries—28 kilograms as against 11, and vegetables and melon crops—by 38 kilograms while in recent years their consumption remained at the same level.

On the basis of this the board of the Tsentrosoyuz considers it necessary during the next 3 years to increase the procurements and sales through the city cooperative network of meat and dairy products by a factor of approximately 1.5, and vegetables, fruits and potatoes by no less than a factor of 2-3. This is one of the most important, radical tasks of our restructuring.

P. S. Fedirko went on to say that principally new approaches are required today in the organization of trade service for the population and public catering in rural areas.

And the question should be posed this way: not simply to improve but to create on the territory of each rural rayon a unified comprehensive system of trade service for the population, being oriented toward enabling rural residents to acquire everything necessary locally without going to large cities for shopping.

Of course it is necessary to begin with the remote populated points where the network is especially weak. More than 100,000 towns and villages where about 7 million people live have no permanent stores at all and 8,000 kolkhozes and sovkhozes do not have dining rooms.

Yet the experience of the Belorussian Consumers' Union (Chairman of the Board—Comrade Grishchenkov) shows that this problem can be solved if one tackles it with combined efforts of consumers' cooperation of kolkhozes and sovkhozes with the support of local party

and soviet agencies. Here the cooperative members even this year opened up 3,000 new enterprises in small villages and towns, and the question of their service will be practically eliminated in the near future because of the organization of small rural stores for "goods in daily demand," and stores in homes or next to homes; and many stores are operating under the family contract.

Such a mass movement for expanding the trade network contributed to the fact that the Belorussian Consumers' Union is fulfilling the plan for retail commodity turnover in terms of overall volume and has high rates of increase in turnover.

Each oblast, kray and autonomous republic should develop concrete plans for the development of the trade network in the remote areas, and the chairmen of the boards of the consumers' unions must supervise this business personally.

An important unit in the comprehensive system for trade service for the rural population is the organization of trade on central farmsteads of kolkhozes and sovkhozes and brigade centers. But it is precisely here that one most frequently encounters an outdated network with a meager assortment of goods.

Cooperative organizations have sharply reduced the sale of alcoholic beverages and they have disappeared altogether from many rural stores. But the shelves of the stores are very poorly filled with daily necessities. In the central farmsteads of the kolkhozes and sovkhozes today it is necessary to have good rural trade centers or trade complexes that unite small general stores, grocery stores, store-warehouses for the sale of wood and construction materials, and bookstores.

Finally, in the rayon centers we must offer the population the full selection of the specialized trade network. When a rural resident is in the rayon center he should have the opportunity to have a broad selection of goods in the general store and stores like "Children's World," "Technical Equipment," and "The Modern Household," as well as commission stores for trade in nonfood products.

It is necessary to take a fresh look at the art of rural trade as well. Consumers' cooperation at one time manifested significant activity in the development of self-service stores. Trade was comprehensively streamlined on a broad scale. Now much of what was done previously has become outdated, and self-service exists only formally, and in many places it has lost its modern features and does not create the conveniences for the consumers that lie in this very form of organization of the trade process.

It would be expedient to return, but on a new, modern basis, to the practical development for each rayon of plans for comprehensive streamlining of trade that envision a flexible change in the very structure of the trade network and deeper specialization of it.

## 48 CONSUMER GOODS, DOMESTIC TRADE

A weak link in the organization of the trade process is commodity supply for the retail trade network. In certain republics and oblasts the salesmen are forced to go for their own goods, to close the stores during this time, to look for transportation, and to unload what they have brought in.

Many consumers' unions do not take a far-sighted approach to the development of intrasystem wholesale trade. Even in places where there are wholesale bases the majority of them are merely transshipment points. In the Orel (Comrade Mishchenko), Ryazan (Comrade Gadzhiev) and Mordovian (Comrade Drazhnyuk) consumers' unions the level of centralized delivery of goods from wholesale bases amounts to less than 25 percent. For comparison let us say that in Cherkassy and a number of other oblasts of the Ukraine 95-98 percent of all the commodities are shipped centrally.

Our wholesale units must actively proceed in the direction of direct ties with enterprises, conclude long-term agreements, and purchase large batches of goods, which is in the interests both of the consumers and of the enterprises themselves. Such an active position will correspond to the spirit of the time.

Under the conditions of the incomplete balance between commodity turnover and commodity resources, the economically unsubstantiated proportions in the distribution of market supplies of commodities between the city and the country which took form in past years have begun to be felt quite strongly.

The amount of goods per one person sold through the consumers' cooperation network is less than in state trade by the following amounts: clothing, underwear, footwear—by a factor of almost 2, radio equipment—2.7, sports items—3, and musical goods—by a factor of 3.7. Rural residents are forced to acquire up to 40 percent of their nonfood products in the cities. It is necessary to raise these issues in an economically intelligent way in the local areas and find ways of resolving them in practice in favor of the rural areas.

It is generally known how critical the situation is with respect to the development of trade in timber and construction materials. We are seriously concerned about the unsatisfactory condition of the material and technical base. In a number of consumers' unions, particularly in the Ukraine, Moldavia, Lithuania, Latvia, Krasnodar Kray, Moscow, Ulyanov, Andizhan and other oblasts they have developed and are implementing large programs for the construction of store-warehouses, premises at household goods stores, and construction premises. All regions should have such programs and they should be implemented persistently.

In 1988, the speaker noted, it was intended to produce goods at cooperative enterprises in excess of the plan, to purchase additional agricultural products at agreed-upon prices, and to enlist additional resources through our

trade subdivisions for an overall sum of no less than 1.5 billion rubles. In order to carry out this minimum task it was necessary to begin to work to find commodity resources in all republics, kray, and oblast consumers' unions.

More attention must be given to such a socially and economically important branch as public catering. It is not being developed uniformly in the various regions of the country. The turnover in public catering in the overall volume of food sales averages about 14 percent throughout the system, but in Latvia and Lithuania it is 21-22 percent, Belorussia—18 percent, and in the RSFSR—less than 11 percent.

Of course this situation has developed over many years. But the essence of the restructuring consists in breaking these unfavorable tendencies and bringing the straggling enterprises up to the level of the leading ones. Here we are speaking not simply about increasing turnover but about creating in rural areas an effectively operating comprehensive system for organizing public catering.

There are models of such a system in practice. An example would be the Gaysinskiy Rayon Consumers' Union in Vinnitsa Oblast (Chairman of the Board—Comrade I. M. Kostyuk). Here they have even created a culinary factor which each day produces more than 60 kinds of semimanufactured products, culinary and confectionery items. It supplies its products to 104 public catering enterprises in the rayon and 36 food stores. The creation of a centralized system for producing semimanufactured products and supplying them to the enterprises that complete their preparation made it possible to release more than 50 units of technological equipment and 25 workers and to increase the volume of product output by 40 percent.

On the whole, however, the rates of development of public catering can certainly not be considered satisfactory. And it is not even a matter of the backwardness of the material and technical base but, primarily, a matter of the uninspired, unenthusiastic attitude on the part of many consumers' unions toward their branch. The situation here must be rectified in the most decisive way.

Then the speaker analyzed development in the system of paid services both for the general population and for those almost 3.5 million workers who were employed in cooperative organizations and enterprises.

He said that it seems that the previously earmarked program for increasing paid services for the population by a factor of 1.7 by the year 1990 is clearly not enough. The question should be stated as follows: there are 60 million shareholders in our system. And the way they actually can feel the force of the attention paid to them from the cooperation is in the possibilities of obtaining the most varied services.

## 49 CONSUMER GOODS, DOMESTIC TRADE

The owners of private subsidiary farms must have the opportunity to take advantage of such services, for example, as the slaughtering of livestock and the production of sausage items and smoked pork from the raw material.

We must take the rendering of paid services seriously and utilize our own base well for this. Why should a master who carries out comprehensive repair service for stores and public catering enterprises not include in his functions, for the appropriate pay, the repair of household refrigerators and other instruments in the homes of the population? Construction organizations should find the possibility of rendering services for construction and repair of residential buildings and outbuildings. It is necessary to expand trade services, especially in the sale of timber and construction materials and technically complicated items. With all the difficulties of transportation it is necessary to search for and find ways of rendering transportation services to the population.

Public catering enterprises have a great deal of room for rendering services, especially in the manufacture of semimanufactured products, confectionery and culinary items, the catering of weddings and festive parties, and so forth.

In brief, it is necessary to make a sharp turn in the direction of this matter and to consider it not only from the standpoint of the economy, but also as an important social measure that contributes to restructuring rural areas, strengthening ties with members of cooperatives, and improving the conditions for the life and daily routines of workers in rural areas and in our system.

More than a year has passed since the adoption of the Law on Individual Labor Activity. A number of decisions have also been adopted concerning the development of cooperatives in the sphere of the production of consumer goods and services.

We have now created 2,200 cooperatives in our system and during April-September 1987 they produced 38 million rubles' worth of products. This, of course, must be regarded as only the beginning of our work. It is necessary to contribute in all ways to the development of this work. And it is also significant how the new cooperatives develop their activity and whether private, state and public interests are actually united here. We cannot allow for smart businessmen, under the guise of cooperatives, to get rich at the expense of the people, the state and consumers' cooperation.

### A Radical Restructuring of management of the Economy of Consumers' Cooperation

The June (1987) Plenum of the CPSU Central Committee, the speaker said, developed a qualitatively new integrated system for management of the country's economy.

To put it briefly, the basic essence of the radical reform in management consists in a sharp expansion of the activity of enterprises and their changeover to complete cost accounting and self-financing, the establishment of a direct dependency between the level of income of the collective of the enterprise and the effectiveness of its work, and a radical restructuring of centralized management of the economy.

It is pointed out in the Law on the State Enterprise (Association) that along with the state enterprise, the cooperative enterprise is a basic unit in the unified national economic conflicts. Thus it emphasizes the equal role of cooperation in the development of the country's economy.

The basic units in our system, which in terms of their purposes and in the nature of their activity can be equated with the state enterprise, the consumer societies and the rayon unions of consumer societies which act for the latter as associations, and also the charter cooperative enterprises and associations in trade, public catering, the procurement-processing complex, and other spheres.

It must be admitted that the role of the main unit of consumers' cooperation was clearly underestimated for a long time. The excessive consolidation and concentration led to a situation where the number of local consumer societies decreased sharply and the range of issues resolved on the basis of self-management and the direct participation of members of the cooperation and their authorized representatives became narrower.

The most important shortcoming consists in that while on the whole consumers' cooperation has always operated on principles of cost accounting and self-financing, this cannot be said about many cooperative organizations and enterprises. Approximately half of the rayon consumers' organizations have not provided for the minimum profit necessary for self-financing and have actually lived at the expense of other organizations that are operating effectively.

The practice whereby higher units take financial resources away from organizations and enterprises of the basic unit has become ingrained. Collectives who have worked hard and achieved high results have not been sure that they would be able to use the money they earned in order to develop the material base or improve the social conditions and material incentives for the workers. This has reduced their interest in labor and the affairs of cooperation, it has led to equalizing, and to a significant degree it has contributed to mismanagement.

All this was incompatible with the spirit and essence of the radical reform of management of the economy and the principal points of the Law on the State Enterprise.

The basic directions for the restructuring in our system were earmarked by the decree of the CPSU Central Committee and the USSR Council of Ministers of 17 July 1986, "On Improvement of Planning, Economic Incentives and Management in State Trade and Consumers' Cooperation." We already have our first experience but there have been no radical changes in the activity of the cooperative organizations yet.

The Tsentrsoyuz board thinks that when the Law on the State Enterprise goes into effect on 1 January 1988 the work in the basic unit of consumers' cooperation should be arranged in a principally new way.

All activity of cooperative organizations and enterprises is based on cost accounting as the most effective way of providing for self-financing.

Complete cost accounting is a reality for many cooperative organizations and enterprises. Since the beginning of 1987 organizations and enterprises of Belorussia, Latvia, and Estonia have begun to operate under the new conditions, and beginning on 1 July—all union republics.

It is still difficult to make general evaluations since the changes on which they counted have taken place far from everywhere and not everything is completely thought out and resolved in the conditions of the new management mechanism itself. But one can already get a good idea of the stimulating force of cost accounting and self-financing from many examples.

Thus in the Latvian Consumers' Union (Chairman—Comrade I. F. Strautin) during 9 months of 1987 profit increased by 13.4 percent. Such rates were not to be found previously. What are the sources of the changes that are taking place? First, there is the increase in retail commodity turnover. Its volume not counting sales of alcoholic beverages increased by 7.5 percent, including sale of products of the public catering enterprises themselves—by 9.2 percent, and agricultural products purchased at agreed-upon prices—almost 28 percent. Second, there is the increase in the volume of production of goods at the enterprises themselves, which amounted to 6.5 percent. Third, there is the real strengthening of conditions for economizing. The level of outlays in the Latvian Consumers' Union is much lower than in other consumers' unions of union republics—6 percent. The turnover time for goods is 81 days while the average throughout the system is 134 days. To this one must add that the proportion of internal capital in the payment for goods in this consumers' union is twice as great as it is on the whole for consumers' cooperation and the level of expenditures through credit is less by a factor of 2.5.

There are even more appreciable results from the changeover to the new management conditions in individual consumer societies and rayon consumers' unions.

## 50 CONSUMER GOODS, DOMESTIC TRADE

Cost accounting in consumers' cooperation, while sharply increasing the responsibility of organizations and enterprises for the results of their work, presupposes a radical change in the nature of the planning of their activity. We are speaking about an essential democratization of this process. The collectives will now establish the five-year plans for economic and social development for themselves and, on the basis of these, the annual plans.

And the interests of the society and the state as well as our system as a whole must be satisfied through control figures, state orders and orders from higher cooperative organizations, long-term stable normatives and quotas which orient cooperative organizations and enterprises toward the achievement of certain national economic goals.

Under the new conditions of management we have also established a normative method of distributing profit according to stable long-term normatives.

The problem now is to make sure that this entire mechanism operates effectively in practice, that all workers without exception are informed of it, and that it is accompanied by specific calculations—which each collective and each worker will receive specifically as a result of the initiative and results of his labor.

There is no doubt that further work will be required for deepening and improving the principles of the new economic mechanism that is in operation here. It must be combined more organically and completely with the cooperative form of management and incentives and interests must be developed more clearly.

It is useful to recall how V. I. Lenin posed the question. In a note to the chairman of the board of Tsentrsoyuz at that time, L. M. Khimchuk, he asked: "Do you apply the payment of cooperative workers depending on the amount of their circulation and on the achievement of success as expressed in reducing the expenditures of our apparatus?" And further: "What serious measures of verification is the Tsentrsoyuz board taking with respect to making sure that our cooperation is really a commercial agency and not a bureaucratic one."

This convincingly confirms the correctness of the task that has been set to have the system of cost-accounting relations include all cooperative organizations and enterprises, associations, and economic structural units without exception.

At the same time one must keep in mind that the most perfect economic mechanism in and of itself will not provide either income or profit. All economic levers and stimuli create only favorable conditions for effective work.

## 51 CONSUMER GOODS, DOMESTIC TRADE

Hence an indispensable requirement: to engage more deeply and concretely in questions of organizing trade and public catering, procurements and production, to accelerate the turnover of circulating capital, to increase the output-capital ratio, and to strengthen labor discipline. At the same time we must not forget about the social direction of our activity and the tasks of constantly raising the level of service for the Soviet people.

### Acceleration of Scientific and Technical Progress Under Development of the Material and Technical Base for Consumers' Cooperation

The current transitional stage of the restructuring is more important than ever before to accelerate scientific and technical progress in the branches of the activity of consumers' cooperation. The ingrained sluggishness here is shown by the fact that the proportion of manual labor in the basic branches of our activity—trade, public catering and procurements—exceeds 90 percent. In the overall composition of fixed capital, the active part—machines and equipment—amounts to less than 17 percent.

Comprehensive mechanization of labor-intensive processes is being conducted extremely poorly and no measures are being taken for extensive utilization of means of minor mechanization.

At the same time the experience of a number of consumers' unions shows that the system has real conditions for accelerating scientific and technical progress.

Thus the Ukrainian Consumers' Union created its own base for producing the simplest kinds of equipment and mechanisms and for comprehensive repair and service of technical equipment, it is actively developing a base of the construction industry, and it is strengthening its engineering and technical services. Each year plans of the consumers' union manufacture 150,000 various containers and 30,000 units of other technological equipment and means of organization. Repair and assembly combines provide comprehensive object-by-object service of technical equipment throughout the entire cooperative network, and this means approximately 1.5 million units of refrigeration, mechanical, heating, lifting-transportation, and other equipment.

The role of the Tsentrosoyuz staff should be more significant and energetic in questions of introducing the achievements of scientific and technical progress and advanced experience.

The Tsentrosoyuz board earmarked serious measures for restructuring branch and VUZ science. The essence of these measures amounts primarily to the fact that all scientific, planning, technological and design organizations beginning 1 January 1988 will be changed over to complete cost accounting and self-financing. At the same time the subject matter of their work is being revised and

minor, secondary subjects are being excluded. The attention of scholars is being concentrated on radical problems of the system's activity.

Modern computer equipment should be used more extensively and effectively in consumers' cooperation.

Scientific and technical progress, the speaker emphasized, is incompatible with poor product quality. At the present time the Tsentrosoyuz board is considering the program "Quality." These programs should exist in each consumers' union and should be unwaveringly implemented. It is necessary to significantly strengthen the network of control laboratories and introduce rigid self-control into the system. We must not wait until state acceptance comes to us and makes us face the fact that a number of productions have been closed down. The development of the material and technical base for consumers' cooperation today requires new approaches.

The interruptions in the construction of many objects, even simple ones, shows the still primitive organization of the construction process, the disorganization of personnel, and the backward organization of labor at construction sites. Hence the failures to meet the deadlines for the startup of many objects, the long duration of construction, the fact that a number of construction organizations are operating at a loss, and the low labor productivity. In essence we have not overcome the "residual" approach to the development of facilities for the social and cultural sphere. For example, the Uzbek Consumers' Union in 9 months assimilated only 33 percent of even the small volumes of housing construction planned for 1987 and the Azerbaijan—29 percent.

Plans for the construction of housing, children's preschool institutions, Pioneer camps and training institutions must be taken under special control and we must ensure their unconditional fulfillment.

During 1988-1989 builders should also change over to the new management mechanism. Even in the near future it is necessary to determine the precise schedules for a stage-by-stage changeover of construction organizations to complete cost accounting and self-financing and to get started on preparatory work.

It is necessary to switch the interrelations among construction-installation organizations, industrial enterprises, and transportation enterprises over to a strict contractual basis, to expand the practice of having construction organizations release objects "turnkey," and more resolutely to introduce the collective contract and other progressive forms of organization and stimulation of labor in construction.

Primary attention should be devoted to economizing on material and technical resources in all branches of our activity. We must not forget that our target program "Economy" envisions satisfying no less than 65 percent of the needs for increasing resources as a result of savings.

## 52 CONSUMER GOODS, DOMESTIC TRADE

### Improving the Organizational Structure of Consumers' Cooperation

The radical reform in management makes it necessary to rearrange organizational structures and bring them in line with the new provisions and functions of the basic unit.

As a first step it is suggested that we increase the number of rural consumer societies to 6,500, that is, by a factor of approximately 1.5 as compared to the existing number, and a number of rayon consumers' unions is to be increased by a factor of 1.7.

It is suggested that each territorial section have an elective agency—a section committee elected by a section meeting and responsible to it and the board of the consumer society. Under current conditions such a measure will serve as a realistic step toward democratization of management in consumer cooperation and expansion of the actually effective elected aktiv.

The draft of the new model regulations of the consumer society that has been developed has in mind including also provisions concerning the expansion of the range of officials elected by members of the cooperation, particularly heads of stores and directors of public catering enterprises, procurement enterprises and other enterprises directly involved in serving the population.

Self-management in consumers' cooperation should be manifested in two interconnected areas: first—self-management of members of consumers' cooperation and their authorized officials, and second—self-management of labor collectives of cooperative enterprises. And the principle of electivity should be applied with respect not only to managers of enterprises, but also to managers of structural units, zones, shops, and sections.

The rearrangement of the organizational structure of management should also pertain fully to the higher management agencies of consumers' cooperation: the apparatus of the oblast, kray and republic consumers' unions and Tsentrrosoyuz. Economic methods of management should be the main basis of their activity.

In this connection it is necessary to radically change the organizational structure of the Tsentrrosoyuz apparatus. Blocks and complexes of interconnected branches are being singled out within it: trade and public catering, procurements of agricultural products and raw material, processing and other branches of cooperative industry, city cooperative trade in agricultural products and kolkhoz markets, foreign economic and general management ties, the material and technical base, economics, personnel and social development. It is intended for the deputy chairman of the Tsentrrosoyuz board to be in charge of management of the complexes, and a number of them

will also be chiefs of main administrations for the corresponding branches. The overall number of the management staff will be significantly reduced, as it will be also in the local areas.

Under Tsentrrosoyuz it is also intended to have certain trade, production, and scientific-production associations on complete cost accounting whose functions will include solving large-scale problems of unionwide significance and developing interrepublic and interoblast economic ties, science, and technology.

There is no doubt, the speaker said, that it is necessary to radically change the style of work of the Tsentrrosoyuz board. Its main activity should be to monitor the implementation of the decisions of the party central committee and the USSR Council of Ministers, as well as its own decisions, to implement them persistently and consistently, to introduce economic methods of management, and to determine the strategy for development.

Cooperative members should proceed more actively along the path to integration with subdivisions of the agroindustrial complex. There is no need to fear entering into agroindustrial associations and combines. With good organization our participation will actually contribute to increasing the production of products and improving the supply for the population. Of course here too it is necessary to observe the requirements of the regulations. All of our interrelations with our partners should be arranged on a strict cost-accounting basis.

In developing the activity of consumers' cooperation it is necessary each day to rely on the support of party and soviet agencies in the local areas and to interact closely with rural soviets of people's deputies, especially when organizing work with citizens who have private subsidiary farms, as well as in the development and implementation of plans for the development and distribution of cooperative enterprises, the establishment of their working conditions, and many other issues related to service to the population.

### Development of International Ties and the Foreign Economic Activity of Tsentrrosoyuz

The restructuring should affect all spheres of the activity of consumers' cooperation without exception, including the international ties of Tsentrrosoyuz.

All-around development of cooperation with cooperative organizations of the socialist countries is the main priority of the international activity of Tsentrrosoyuz. Our goal now is, along with our friends, to take a large step forward in the practical utilization of the possibilities of cooperation among the socialist countries and to increase its authority in the international cooperative movement.

### 53 CONSUMER GOODS, DOMESTIC TRADE

It is exceptionally important to restructure foreign economic ties. As we know, the party central committee and the government have adopted a number of fundamental decisions regarding these issues. Tsentrosoyuz has been granted extensive rights in this area. We are speaking about changing over from traditional forms of foreign trade exchange to new forms of foreign economic interrelations, mainly those such as the establishment of direct ties between industrial enterprises and the creation of joint enterprises.

The Tsentrosoyuz board has especially considered these issues and approved a program for increasing export resources for consumers' cooperation and it has also established the basic directions for further work of Soyuzkoopvneshtorg [All-Union Cooperative Foreign Trade Association].

The development of the international ties of Tsentrosoyuz should be carried out on the basis of the new political thinking and that higher level of theoretical and mass awareness which is associated with the dynamics and results of restructuring in our country and the socialist part of the world as a whole.

Active steps should be taken to expand the friendly and economic contacts with cooperative organizations of capitalist and developing countries and further strengthen the positions of Tsentrosoyuz in the international cooperative alliance, especially in connection with the forthcoming 1988 congress of this mass social organization that will bring together more than 500 million cooperative members from all over the world.

#### **Improvement of Work With Personnel and Organizational-Mass Activity of Consumers' Cooperation**

Regardless of how significant the role of the new economic methods of managing the economy may be, P. S. Fedirkо went on to say, the success will depend largely on how much we are able to improve the practice of selection and education of personnel. It is now especially important to evaluate personnel in terms of their attitude toward the restructuring. Today everyone must begin to resolve the immediate, essential, vitally important tasks which directly affect man's daily life. And personnel should be evaluated according to how they resolve these problems.

Many new energetic and in principle fairly well-prepared people have now come to manage many consumers' societies, rayon consumers' unions, and also oblast, kray and republic consumers' unions. This is a natural process. But these personnel sometimes have a critical shortage of modern economic and vocational knowledge. Therefore our task is to develop in the system the most active and consistent work for training personnel who

have recently come to the cooperative organizations. It is necessary to create a well-arranged system for increasing the qualifications of personnel and to establish the time periods for this work.

Under Tsentrosoyuz we are creating an Institute for Increasing the Qualifications of Management Personnel and Specialists, which should take over the functions of in-depth development of the very methods for increasing the qualifications of personnel, and preparation of training aids, and it should organize the training of people in the most crucial problems having to do with improving the economic mechanism, in-depth utilization of cooperative forms of management, and acceleration of scientific and technical progress in consumers' cooperation.

Universal economic education has been declared in the country. We must organize the training of managers, specialists, and rank-and-file workers in a businesslike and concrete way and on a high theoretical and practical level and we must make sure that they have a good mastery of economic knowledge.

It is necessary to combine economic and occupational training with educational work under the conditions of the complex new processes that have developed in the country because of the restructuring. It is extremely important to teach personnel not to fade in the face of difficulties, to show restraint, and to find the optimal solutions to the problems presented by life. Hard and purposive work which brings a real and appreciable return—this is the goal of the manager of each cooperative organization and the main criterion for evaluating their activity and their participation in the restructuring. It is necessary to learn to overcome such negative features in the activity of certain categories of workers as the habit of being without initiative, irresponsible and incompetent, and we must replace bureaucratic tricks with real work.

It is also necessary to overcome such a problem as the frequent replacement of managers of rural consumer societies, rayon consumer societies and rayon consumers' unions. What kind of return can we expect, for example, from the activity of the consumers' cooperation of Azerbaijan when of the 62 rayon consumers' unions and consumer societies in this republic, the chairman of all 62 organizations were replaced under the 11th Five-Year Plan. Along with the recently elected chairman of the board of the consumers' union, Comrade Abdullayev, and the republic party agencies, the Tsentrosoyuz must put things in the proper order here.

Large mistakes in personnel work are the main reason for the extravagance, thefts, and other abuses. In 1986 alone in the system of consumers' cooperation more than 40,000 crimes were revealed, one-fourth of which were thefts committed through misappropriation, expenditures of funds, or abuses of position. There was no appreciable reduction of the number of hidden legal violations in 1987 either.

Even the simplest analysis of cases of thefts and embezzlement shows that the ways of committing them are standard and all the same, as a rule, based on a formal inventory of commodity and material values, complicity of materially responsible people and the bookkeeping staff, and deliberate confusion of reports. This pattern has been revealed: as a rule, there is much embezzlement in stores where commodity supplies significantly exceed the established normatives. But this situation does not serve as an alarm for the trade staff and is not accompanied by the adoption of the necessary preventive measures.

Here we see clearly the effects of indifference and the so-called system of the departmental approach. It would seem that only the bookkeepers and inspectors are responsible for protection of cooperative property. It is necessary to create throughout all of our system a situation which would stop up all channels of embezzlement and theft of cooperative funds.

Consumers' cooperation is not only a management organization but also a mass public organization. The system has almost 2 million people who are elected to various cooperative agencies. This is an immense social potential.

In the current situation of democratization it is necessary to exert all possible efforts so that this potential will reveal its true possibilities. This means that it is necessary to sharply increase the role of cooperative authorities, members of commissions for cooperative control, and members of soviets of oblast, kray, and republic consumers' unions and Tsentrrosoyuz. It is necessary to think again and resolve the issue of how the members of these elective agencies can best make their contribution to the development of cooperation during the period between meetings, what permanent commissions we should have, and how their work should be arranged. All these questions must be considered in the drafts of the new model regulations.

All the force of both economic and mass social activity of consumers' cooperation should be directed toward making sure that its members and all the population we serve can really see the improvement in the supply of food products, in the trade in other commodities, and in the satisfaction of their other various needs. I repeat once again—this is our main goal, our main cause, what the party and people are expecting from us.

Our party, the speaker said in conclusion, has set forth great tasks for further development of the Soviet society and has earmarked a strategy for restructuring, the specific directions, and the forms and methods. A new political and moral-psychological atmosphere has been established in the country, the interest and activity of the people have increased, the level of demandingness, criticism and self-criticism, and glasnost has risen, and prerequisites have been created for real changes both in thinking and in attitudes. This is reflected in those positive changes which are still only a beginning but have actually taken place in the socioeconomic sphere.

Allow me to express my confidence that the cooperative members will participate most actively in solving the problems facing us and will continue in the future to render active support to our party's course toward acceleration of the country's socioeconomic development and restructuring and updating of all spheres of the society for the good of the people.

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## GOODS PRODUCTION, DISTRIBUTION

### Relationship of Population Budget to Trade Volume Viewed

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[Article by R. Lokshin, doctor of economic sciences: "Balance of Income and Expenditures of Population, Retail Commodity Turnover and Commodity Resources"]

[Text] The observance of the necessary proportions between monetary incomes and expenditures of the population depends on many factors: volume of production of goods and various services, their structure and quality; provision of a closer link between payment for labor and its final result; the level and ratio between retail prices for goods; the scale of enlistment of funds from the population for cooperative and individual housing construction, garden and orchard communities; and expansion of savings and various forms of insurance. The first of the aforementioned factors is of decisive significance. Since more than 80 percent of the income is used by the population to purchase goods and pay for services, the balance of the income and expenditures is conditioned mainly by the fulfillment of the plans for retail commodity turnover and paid services.

## 55 CONSUMER GOODS, DOMESTIC TRADE

Table—Fulfillment of Annual Plans for 1966-1987

Indicator	Average for 22 Years, %	Upper and Lower Level of Fulfillment of Plans, %	Number of Years When Plans	
	Were Fulfilled	Were Not Fulfilled		
Monetary incomes	100.9	103.7-99.3	19	3
Retail commodity turnover*	99.1	101.3-96.3/102.0- 97.1	5/14	17/8
Commodity provision for commodity turnover	99.3	102.4- 94.5	10	12

\* In the numerator—the fulfillment of the plan, including additional assignments, in the denominator—not including additional assignments.

In this connection, it is interesting to consider data that characterize the fulfillment of the plans for monetary incomes for the population, retail commodity turnover of state and cooperative trade, and also commodity provision for commodity turnover (Table 1). In spite of the fact that on an average deviations from the planned indicators are insignificant and comprise tenths of a percentage, in individual years they have been fairly significant, which shows that their balance is not stable. And the fulfillment of plans for the various republics, krays and oblasts and especially for the rayons and cities was even more irregular.

Plenums for monetary income of the population, as a rule, are more than fulfilled (except for 1982, 1985 and 1986) while plans for retail commodity turnover (including additional assignments) have not been fulfilled for 17 years. The level of fulfillment of these plans was especially low when there was a reduction of the absolute volumes of increase in retail commodity turnover in 1982-1987. The average annual increase in commodity turnover during this period was 9.2 billion rubles as compared to 12.6 billion rubles for the preceding 6 years (1976- 1981). This was conditioned by a number of circumstances.

In the first place, there was the economically unjustified increase in retail prices (beginning 15 September 1981) for jewelry and fur items, crystal, rugs, shawls, and

several other goods. As a result there was a reduction in the demand for them and the stockpiles increased in trade and industry. In the second place, there was the limitation of imports for freely convertible currency of a number of goods and raw material for their production, and these were not produced within the country. Third there was the reduction of the production and sales of alcoholic beverages which was not everywhere accompanied by the corresponding increase in the production of goods needed by the population or expansion of the volume of services.<sup>1</sup> In the fourth place there was the poor quality of the production of the considerable proportion of the goods, which also remained in the stockpiles. Yet the demands of the population for quality, consumer properties and assortment of goods increased. As a result, there arose a need to increase the trade's influence on production, to draw commodity resources into commodity circulation more actively, to study demand deeply, and to predict changes in it. But many industrial enterprises and organizations of state and cooperative trade were unprepared for these increased requirements. An opposing tendency arose in the dynamics of commodity turnover and commodity supplies: in 1981-1985 there was an absolute increase in supplies, which outstripped the growth of commodity turnover, and in 1986-1987 commodity turnover increased while there was an absolute reduction of supplies (Table 2). The increasing demand of the population was partially satisfied by bringing into circulation previously accumulated commodity supplies, but this did not fully compensate for the production arrears.

Table 2—Change in Retail Commodity Turnover and Commodity Reserves (in Prices of Corresponding Years)

	1981	1985	1985 as % of 1981	1987	1987 as % of 1985
Retail commodity turnover, billions of rubles	286	324.2	113.4	341.1	105.2
Commodity reserves in retail and wholesale trade and in industry at end of year, billions of rubles	75.4	97.8	129.5	83.2	85.0
Days for turnover	101	118	116.8	98.0	83.0

All this shows that the economic mechanism, which should link together the interests of the society and the interests of the enterprises, labor collectives, and individual workers, has not been operating reliably enough. The radical reform being conducted at the present time,

which encompasses all aspects of the economic and social life of the society, will contribute, in particular, to significantly increasing the production of consumer goods, improving their quality, expanding their assortment and, correspondingly, providing for balance

## 56 CONSUMER GOODS, DOMESTIC TRADE

between supply and demand. Nonetheless this does not rule out the need to conduct current measures as well for improving the planning of monetary income and expenditures of the population, retail commodity turnover and services for the population, and their material provision, which should contribute to increasing the effectiveness of the new economic mechanism. We are speaking about certain proposals, which, in our opinion, can be realized with the development of plans for 1989-1990 without waiting for the results of all the constituent elements of the radical reform of the economy.

One of the instruments for balancing the monetary incomes and expenditures of the population with the volumes of retail commodity turnover until recently has been additional assignments for commodity turnover, and also for production of consumer goods and procurements of agricultural products. The additional assignments for retail commodity turnover established when approving the annual plans for economic and social development ranged from 0.6 billion rubles (1973) to 6 billion rubles (1985). As one can see from Table 1, in 22 years these plans were fulfilled only 5 times and this was to a significant degree as a result of above-plan receipt of goods and raw materials through imports and also price changes.

Additional assignments for retail commodity turnover not backed up or only partially backed up by commodity resources included growth of monetary incomes of the population for which subsequently there was still not the corresponding provision of goods and services. As a result of the utilization of such planning methods, the real difficulties were artificially smoothed out and the solution to the total problem was put off indefinitely—satisfaction of demand, elimination of the deficit, and strengthening of monetary circulation. Practice shows the ineffectiveness of these methods, and since 1986 no additional assignments have been set for the overall volume of retail commodity turnover. But additional assignments in various forms are still used for producing individual consumer goods. For example, for 1988 in providing for the plan for retail commodity turnover they took into account additional assignments for producing flour, groats, pasta and confectionery items and also the procurement of livestock, milk and eggs in excess of indicators adopted by the oblasts, krays and union republics, even though procurements for these products are not planned centrally. The sum of this kind of additional assignment exceeds 6 billion rubles.

Industrial enterprises do not conclude economic agreements for the output of goods under the additional assignment and do not bear economic responsibility for their delivery. And trade organizations receive a unified

plan for commodity turnover which also includes additional assignments set for industry and agriculture and they bear complete responsibility for its fulfillment.

This responsibility has become even greater under the new conditions of management that were introduced for trade organizations in 1987. Now incomes and payment for the labor of workers are directly dependent on the fulfillment of the plan for commodity turnover. Therefore incomplete, like unreliable provision of commodities for the plan for commodity turnover weakens the motivation of the workers and leads to personnel turnover. Moreover, one cannot forget about the fact that in the final analysis prompt payment of wages to workers of all branches of the national economy and the condition of monetary circulation, and budget incomes, that is, the solution to the entire complex of problems of balance depends on the fulfillment of plans for commodity turnover.

Positive changes are currently taking place in planning practice: stable indicators have been established for the five-year plan, it has been recognized as necessary to refrain from adjusting plans at the end of the year, and we have condemned the method of approach to establishing plans "from the level achieved." This does not mean, however, that with annual planning we do not consider newly arising situations that were not envisioned during the development of the five-year plan. Thus taking into account the results of the agricultural year production plans are adjusted for individual products, for example, sugar beets and vegetable oil. But these changes are made after the establishment of the plan or at the beginning of the planning year although a sufficiently reliable estimate of the crop can be made in the autumn of the preceding year with the formation of the plan for the next year. In spite of the changes in the production plans for individual food products, no adjustments are made in the plans for commodity turnover.

In developing the principle of stability of the five-year plan, in the annual plans for economic and social development the comparison of indicators is made with the plan for the preceding year and not with the expected fulfillment. With small fluctuations and the fulfillment of the plan this approach does not exert a significant influence on the growth rates but in certain cases the formation of the indicators "plan to plan," not supported by material resources, leads to an artificial smoothing out of the real difficulties, which then manifest themselves during the course of the fulfillment of the plan. This does not help things but only raises "unexpected" problems which could have and should have been foreseen when forming a difficult but feasible plan.

What has been said can be illustrated with data concerning retail commodity turnover in 1985-1988 (Table 3).

## 57 CONSUMER GOODS, DOMESTIC TRADE

Table 3—Retail Commodity Turnover, Billions of Rubles

	Overall Volume		Increase in Planned Commodity Turnover as Compared to Indicator of Preceding Year	
	Plan	Actual	Planned	Actual
1985	334	324.2	11.5	17.9
1986	342	332.1	8.0	17.8
1987	353.7	341.1	11.7	21.6
1988	363.0	—	9.3	21.9

As one can see from Table 3, the actual volume of commodity turnover turned out to be less than was envisioned by the plans: in 1985—by 9.8 billion, 1986—9.9 billion, in 1987—12.6 billion rubles. Thus the formation of the annual indicators strictly in volumes envisioned by the five-year plan in and of itself did not contribute to reducing the disparity between the planned and actual indicators, and the comparison of planning indicators for the various years does not reflect the actual state of affairs and therefore does not direct people toward eliminating difficulties and shortcomings.

In keeping with the Law on the State Enterprise (Association) the five-year plans are developed and approved independently. Additionally, as a basis for forming the five-year plan, one uses control figures, state orders, long-term economic normatives and limits, and also direct orders from consumers and material and technical supply agencies. The law has determined that the annual plans are also developed and approved by the enterprise independently on the basis of the five-year plan and economic agreements that have been concluded. Moreover, agreements are concluded as a result of resale items at wholesale trade fairs which are the base for planning the assortment and improving the quality of goods, and indicators that determine the production and social development of the enterprise.<sup>2</sup>

If the annual plan of the enterprise (association) that produces consumer goods is determined for it independently as a result of economic agreements that are concluded, one can assume that the plan for retail commodity turnover of the trade enterprise (auction, workers' supply department, firm store, cooperative) should also be determined taking into account agreements included with the enterprises for the delivery of the corresponding goods.

But such a plan for retail commodity turnover might not be coordinated with the volume of the retail commodity turnover necessary to provide for balance between monetary incomes and expenditures of the population in the republic, kray, oblast or country as a whole. Therefore national economic proportions developed on the scale of the country should be reinforced by real material resources and attached to the economic mechanism which is capable of increasing the production of goods

and improving their quality with a minimum of expenditures. In the new structure of the plan for economic and social development adopted through 1988 the volume of retail commodity turnover is included in the indicators envisioned by the state plan. But such a formal solution to the problem of coordinating consumer funds of the population with the retail commodity turnover does not achieve the goal.

All indicators (assignments) included in the state order should be centrally provided with material resources. Yet according to sources for forming resources approximately 40 percent of the volume of retail commodity turnover (not including alcoholic beverages) is accounted for by goods whose production (procurement) and delivery for sale to the population are determined independently in the oblast, krays, autonomous republics and union republics that do not have oblast division. These include plans for state procurements of cattle and poultry, milk, eggs, potatoes, vegetables, melon crops, fruits and berries, grapes, citrus fruits and dried fruits (only part of these products which are delivered to the unionwide and republic funds are included in the state order). In the local areas the volumes of procurements of agricultural products are determined by the organizations of consumers cooperation at contractual prices and the volume of their sale at cooperative prices, and also the volume of output of products from their own production in public catering; production of agricultural products on subsidiary farms of industrial enterprises; commission turnover for sale of nonfood products including those produced by cooperatives and through individual labor activity; products of industries of kolkhozes and sovkhozes. There is an increasing volume of independent sales of fruit and vegetables and potatoes by kolkhozes and sovkhozes for consumers' cooperation and in kolkhoz markets. The production of a considerable proportion of the nonfood products not included in the state order is determined by the ministries, departments, and union republics.

Thus the problem of coordinating this important national economic proportion cannot be resolved by including retail commodity turnover in the state order. For even with more detailed centralized planning of a broad list of production of consumer goods in recent years we have not managed to reliably provide the necessary resources for commodities in the plan for retail commodity turnover.

## 58 CONSUMER GOODS, DOMESTIC TRADE

It seems possible to use a different system for planning retail commodity turnover in coordination with the balance of monetary incomes and expenditures of the population and commodity resources based on decisions that have been made to expand the rights and increase the responsibility of soviets of people's deputies for the development of the economies of their regions.

The decree of the CPSU Central Committee and the USSR Council of Ministers of 17 July 1987 stipulates that the councils of ministers of the union and autonomous republics and ispolkoms of local soviets of people's deputies bear complete responsibility for the condition of monetary circulation on the corresponding territory. It has been recognized to be necessary to retain in the state plans for economic and social development of the union republics balances of monetary incomes and expenditures of the population and in the future to develop and approve cash plans for union and autonomous republics, krays, oblasts, and cities. This measure also corresponds to the fact that the union and autonomous republics, krays, oblasts and large cities must develop comprehensive plans that encompass the development of all enterprises on their territories regardless of their departmental jurisdiction. In turn, the union and union-republic ministries and departments must coordinate their activity with the council of ministers of the union republics and when developing plans take into account proposals pertaining to comprehensive development of the republic's economy, particularly the production of consumer goods.

It is also stipulated that the councils of ministers of the union and autonomous republics and the ispolkoms of the local soviets of people's deputies are obliged to concentrate attention on solving problems related to the immediate satisfaction of the needs of the population and above all for consumer goods, and to enlist for participation in the production of these goods in rendering services to the population all enterprises, associations, and organizations, regardless of their departmental jurisdiction, guided by the task of achieving complete balance of monetary incomes and expenditures of the population.<sup>3</sup>

The implementation of the aforementioned measures along with more active enlistment of private subsidiary farms of the population, garden and orchard societies, and industrial enterprises in the production of agricultural products and provision for more thorough processing and complete preservation of the products will create favorable prerequisites for eliminating the shortage of products and improving the satisfaction of the demand of the population.

Increasing the responsibility of each region for the balance of incomes and expenditures of the population and commodity turnover with the commodity resources is achieved not by regrouping planning indicators, economic normatives, limits and initial data but by real influence of the economic mechanism on the course of

affairs and coordination of interests in all spheres of the economy—industry, agriculture, construction, science and, of course, trade. The coordination of the plans is provided by the balance method which relies on real material and financial resources.

Under the new conditions it becomes possible to make more radical changes in the planning of commodity turnover, services and monetary incomes and expenditures of the population. Plans for retail commodity turnover and the volume of services to the population are now established separately for each region. Balances of monetary incomes and expenditures are also developed for the population according to individual items. The result of the balance is either that the incomes and expenditures are equal or that the incomes exceed expenditures ("settlement" of money with the population), or the money is removed from circulation (when the expenditures for the year exceed the incomes). When this balance is drawn up special attention is devoted to the emission result. This is linked, in particular, to the fact that from 1971 through 1985 the quantity of money in circulation increased by a factor of 3.1 while the production of consumer goods which represented the basic volume of retail commodity turnover increased by a factor of 2.

It seems expedient in the future to establish the balance of monetary incomes and expenditures of the population as a calculated, directly established indicator—the emission result. In each region, considering the final emission result of the balance, measures will be developed for increasing the production of goods, expanding services, developing housing cooperation, including the population and various forms of insurance, attracting money to savings banks, and also more strictly checking on the expenditure of funds for payment for labor. The possibilities of effective utilization of individual items of monetary incomes and expenditures of the population can be more fully revealed in each republic and kray and not through a strictly centralized policy.

We should also refrain from separate centralized planning of retail commodity turnover and paid services to the population, granting the republics, krays and oblasts the right to determine assignments for commodity turnover and services for themselves within their borders, the more so since this does not influence the emission results. It would also be expedient to distribute market supplies of timber and construction materials locally through trade channels and through the sphere of services. The total centralized planning of the volume of retail commodity turnover and services to the population will make it possible to eliminate duplication of the indicator of consumer services which is now planned as a part of retail commodity turnover.

The proposed changes in planning must be carried out on the basis of an in-depth analysis of economic, demographic, and natural-climatic peculiarities of each

## 59 CONSUMER GOODS, DOMESTIC TRADE

region, the tendencies that are developed in the formation of commodity resources and monetary circulation, and in accounting for the real possibilities of eliminating the negative processes.

Attempts to establish in one year a non-emission result for the balance of monetary incomes and expenditures of the population in all union republics without exception without accounting for the real conditions and possibilities for this will not produce the necessary result and will create additional difficulties. For the economy of each republic is linked to the entire national economic complex of the country. Moreover, the solution to this problem will depend on the division of labor among the regions, the specialization of the republic, the level of economic development, and the natural and climatic peculiarities of each region.

The experience of the Lithuanian and Belorussian SSR shows that the balance of monetary incomes and expenditures of the population achieved there was provided because of the relatively harmonious development of agricultural production, light, local and other branches of industry (including Group A) that produce consumer goods. This required a certain amount of time and considerable capital investments and, of course, purposeful and persistent work on the part of management agencies of these regions.

The indicator of the average retail turnover per one person in the Belorussian and Lithuanian SSR as compared to the analogous indicator for the USSR as a whole to a certain degree characterizes the economic development in these republics (Table 4).

Table 4—Per Capita Retail Commodity Turnover in State and Cooperative Trade (in Prices of Corresponding Years)

	1960		1965		1970		1975		1980		1986	
	Rubles	%										
USSR	367	100	454	100	639	100	827	100	1019	100	1185	100
Belorussian SSR	269	73	362	80	579	91	795	96	1027	101	1267	107
Lithuanian SSR	319	87	429	94	702	110	924	112	1203	118	1435	121

The new management conditions introduced into trade and public catering in the middle of 1987 (in Belorussia, Latvia and Estonia—the beginning of 1987) created the basic prerequisites for strengthening the interest of workers to increase commodity turnover, advance the art of service to the population, to conduct business economically, and to fulfill the planning indicators with fewer expenditures and fewer people. The restrictions were removed from the amount of the overall earnings with an increase in the volume of work and in the selection of forms of payment for labor. The branch was among the first to change over to the residual principle for forming the total fund for payment for labor (including various kinds of bonuses) in direct dependence on the cost-accounting income obtained by each enterprise.

But the long-term normatives established when the branch changed over to new conditions of management were intended for the volume of commodity turnover and, correspondingly, the incomes based on the already established five-year plan. And the volumes of commodity turnover were determined without taking into account alcoholic beverages, and it was impossible to make up for the reduction of incomes from their sale. The amounts of trade rebates which would have provided for eliminating losses with the sale of individual goods were not brought into the necessary correspondence with economic normatives. As a result, incomes and wages decreased at many enterprises.

An analysis of the activity of regions and enterprises that fulfill the plans and achieve high rates of growth of

commodity turnover shows that a decisive influence on these results is exerted by the totality of organizational measures in which not only previously unutilized reserves and the human factor, but also previously created economic conditions are put to work.

Very important for providing for balance between incomes and expenditures of the population are reserves for increasing commodity turnover whose utilization depends directly on the organization of the trade process and the initiative and enterprisingness of workers in state and cooperative trade.

This pertains primarily to management of commodity resources, movement of commodities, and monitoring the level of their supplies. In individual republics (oblasts) level of commodity supplies is significantly higher than the average indicators for the country or for regions with similar conditions. Of course their level cannot be the same everywhere, since it depends on objectively different conditions of one oblast or another: the structure of commodity turnover, the ratio between urban and rural trade, the volume of activity of the stores, natural and climatic conditions, and so forth. But nonetheless significant differences in these indicators show the great unutilized reserves in a number of regions. But as of 1 October 1987 the supplies in commodities and retail trade were (in dates of circulation):

Estonia—58 days, Latvia—64, Lithuania—66 days, Armenia—100, Azerbaijan—114, Georgia—122 days; Kirghizia—104, Turkmenia—122, Uzbekistan—126, and Tajikistan—129 days.

The supplies cannot be a permanent reserve for augmenting commodity resources that are in short supply but their normalization is an important condition for increasing the effectiveness of management of incoming goods and distributing market supplies among the oblasts (rayons, trade enterprises). The level of reserves serves as a barometer of the condition of trade and checking on their movement is necessary in order to make operational decisions.

A significant source of augmenting commodity resources and increasing commodity turnover in each rayon and oblast is the development of public catering, especially through increasing the output of products of their own production. The per capita sale of these products in 1986 ranged from 38 rubles in the Turkmen and Tajik SSR's to 109 and 107 rubles in the Latvian and Estonian republics with an average indicator for the USSR of 69 rubles. This indicator also depends on economic and social peculiarities of one republic or another—the composition of the families, the ratio between urban and rural population, the overall level of economic development, and the professional composition and mobility of the population. But in a number of republics (Kazakh, Kirghiz, Uzbek, Armenian and Azerbaijan, where this indicator in 1986 ranged from 55 to 41 rubles (there are large unutilized reserves for the development of this branch).

Procurements of surplus agricultural products at contractual prices and their sale at cooperative prices also contribute to increasing commodity resources. Turnover for the sale of products under these conditions is increasing and has amounted to the following: in 1985—4.8 billion rubles, 1986—almost 6 billion, and 1987—7.7 billion rubles.

But here too there are great unutilized reserves. These include increasing procurements of surplus agricultural products (cattle and poultry, fruits, berries, vegetables, potatoes) from the population and garden and orchard societies, procurement of wild fruits and berries, mushrooms, and honey, an expansion of cooperative trade on kolkhoz markets which in 1987 were transferred to the jurisdiction of consumers cooperation. Cooperative organizations not only procure products but also process them into sausage items at their own enterprises, produce canned fruits and vegetables, various kinds of pickles and marinades, nonalcoholic beverages, and confectionery items, preserved mushrooms and honey, and so forth. Joining together in the same hands (at the rayon level) procurements, production activity and sales of processed products should obviously produce a significant economic effect.

The extensive network of rural cooperative procurement industries created by decision of the Tsentrsoyuz Council will be an additional new source for augmenting commodity resources. A number of cooperative organizations have already achieved positive results. Thus in the Khmelintsy Oblast Consumers Union (UkrSSR) every fourth ruble in commodity turnover is obtained from the sale of products produced at enterprises in consumers cooperation at this oblast.

Expansion of the sales of nonfood commodities accepted on commission from the population, including people employed in individual labor activity and the sale of wastes and substandard materials from industry and construction through stores such as "skilled hands," "do it yourself," and "the young technician" can contribute to the achievement of balance of the incomes and expenditures of the population.

An increase in commodity turnover can also be achieved as a result of creating cooperatives for producing consumer goods, consumer services and public catering. By October 1987 there were 3,237 cooperatives of various profiles in operation in the trade system and they sold products and rendered services amounting to 66 million rubles. In the future, the scale of the activity of cooperatives will increase, which will create conditions for improving the satisfaction of the demand for goods and services.

When drawing up plans for commodity turnover and developing measures for balancing the incomes and expenditures of the population one should also take into account that it is expedient for a certain part of the population to accumulate some of the income it receives in order to acquire valuable goods whose purchase goes beyond the framework of current incomes, for entering housing construction cooperatives, for individual housing construction, for improving garden plots, for maintaining the customary standard of living after the curtailment of labor activity, and so forth. Therefore the balance of monetary incomes and expenditures of the population must be developed not only on the whole but also for various groups of families which differ in terms of the structure of incomes and expenditures and have differences in the average per capita income. It is necessary to activate the role of the financial and credit system in achieving balance (drawing the funds of the population into savings banks, housing construction cooperatives, the development of various forms of insurance).

Many years of practice in drawing up the balance of monetary incomes and expenditures of the population on the scale of the country on the basis of equal incomes and expenditures or a certain amount of removal of money from circulation shows the inadequate effectiveness of this method. The main reason for this is the shortage of goods and services and also the insufficiently close connection between payment for labor and the results of management.

The approach that is based on equal incomes and expenditures was also used for establishing a plan for 1948 after the exchange of money in circulation that was conducted in December 1947. The planned volume of retail commodity turnover determined on the basis of the purchasing fund of the population was fulfilled by only 80 percent in 1948. They did not envision the normal increase in cash among the population necessary for the conditions of this year in order to augment the so-called current cash. Of course the conditions of the present time are different but what has been stated above shows that it is necessary to account in all ways for the economic and social factors when conducting the current and long-range policy in the sphere of monetary circulation. Planning commodity turnover and coordinating its volume with commodity resources requires the most careful substantiation. It is important for the plan to be difficult but realistic and fully provided with resources. Special attention should be given to this question when forming the plans for 1989 and 1990 when there will still be a certain effect from the unfavorable factors which were not properly taken into account when establishing the economic normatives for long-term effect for the 12th Five-Year Plan.

It would be expedient to place the general principle for the formation of annual plans on the basis of concluded agreements at the basis of the plan for trade enterprises, at the same time taking into account the resources brought into circulation through the forces of trade itself. And these resources should not be a "makeweight" to the plan, but their proportion in the overall provision for commodity turnover should increase.

In the national economic plans it is necessary to envision a "reserve of durability" required to provide for a possible lack of correspondence between the overall proportions and the plans adopted in keeping with the Law on the State Enterprise (Association).

#### Footnotes

1. In 1984 alcoholic beverage sales amounted to 52.8 billion rubles, 1985—47.7 billion, and 1987—36.5 billion rubles (in the prices of the corresponding years, including the markup in public catering). At the same time the sale of commodities not including alcoholic beverages increased as compared to the preceding year: in 1985—by 13.4 billion rubles (5.1 percent), 1986—18.3 billion (6.6 percent), and 1987—only 9.5 billion rubles (3.2 percent).

2. See: "O korennoy perestroyke upravleniya ekonomikoy" [On a Radical Restructuring of Economic Management], Moscow, Politizdat, 1987, p 25.

3. Ibid., pp 211, 215, 223, 224.

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## HOUSING, PERSONAL SERVICES

### RSFSR Official on Changes in Housing Sector 18270036 Moscow SOVETSKAYA ROSSIYA in Russian 4 Mar 88 p 3

[Article by O. Lobov, deputy chairman, RSFSR Council of Ministers, under "A Look at Perestroyka" rubric: "How Can We Speed Up New Housing"; first paragraph is SOVETSKAYA ROSSIYA introduction]

[Excerpts] With ardent approval and great hopes Soviet people support the following goal which has been set by the party: to provide every family with a separate apartment or an individual house by the year 2000. Considering the importance of solving the housing problem as one of the main thrusts of perestroyka, the Presidium of the RSFSR Supreme Soviet intends to bring this matter up for discussion at the next regular session of the Supreme Soviet, which will take place in April. It has been proposed that the government of this republic report to the deputies about the status of and measures to improve housing construction in the Russian Federation. Today we present for our readers' attention several theses of the upcoming report, which will be delivered at the session by Oleg Ivanovich LOBOV, deputy chairman of the RSFSR Council of Ministers.

#### What is the acuteness and scope of the housing problem?

Approximately 80 percent of the letters and complaints being received by the Russian Federation's Council of Ministers have been caused in one way or another by dissatisfaction with housing conditions. This is completely explicable. Some 8 million families are on a waiting list to improve their housing conditions. Waiting for new housing drags on for 10-15 years. Approximately 35 million persons are living in communal or sub-standard apartments. To our great regret, among those needing better housing there are quite a few disabled persons and veterans of the Great Patriotic War, as well as the families of servicemen who have perished. We feel the housing particularly in regions of Siberia and the Soviet Far East, where per capita apartment space is less than the average for the republic as a whole by a factor of 1.5. The lag in housing construction remains the most depressing consequence of the "residual principle." During the next 15 years we must increase the average amount of living space provided to 18.5-19 square meters per person. However, these figures should be regarded as only minimal. In certain areas the average-statistical indicator has already reached the optimal level, but the waiting lists of persons needing housing still remain. It would be correct, therefore, to regard the year 2000 as the ultimate deadline for solving the problem as a whole for the Russian Federation, whereas more imminent deadlines should be set for specific labor collectives, cities, rayons, and oblasts in line with their financial and material possibilities.

## 62 CONSUMER GOODS, DOMESTIC TRADE

*What volumes and pace of housing construction are necessary?*

The annual rate of increase for introducing housing should amount to at least 5-6 percent. According to estimates, 360-370 million square meters will be built during the 12th Five-Year Plan. In the ensuing five-year plans we need to increase the amount introduced to 400-420 million square meters. In other words, during the near future we must provide up approximately 1.82 million apartments per year for housewarmings. At the same time there is a great need to sharply increase the volume of repairing the housing stock and bring it up to the normative requirement of 10-12 million square meters of total space annually.

*What was accomplished during the past two years of the five-year plan?*

In 1986 a total housing area of 66.4 million square meters was introduced by means of all sources of financing. This is 7 percent more than the average annual indicator for the 11th Five-Year Plan. Last year the pace continued to accelerate. Some 1.3 million new, well-laid-out apartments were built with a total space of 71.9 million square meters. The plans for two years of the five-year plan were over-fulfilled. As you can see, this is quite a good beginning. However, there is still a long way to go before we reach the necessary 80-90 million square meters per year. Moreover, positive movement has not been noted everywhere. Many local soviet and economic bodies have not yet been able to focus sufficient efforts on solving social problems. Last year the Daghestan and Checheno-Ingush autonomous republics, Krasnodar Kray, and Astrakhan, Gorkiy, Novosibirsk, Ryazan, and Chita oblasts failed to cope with fulfilling their housing-construction plans. Working people employed in enterprises of the USSR Ministry of the Electrical Equipment Industry, Ministry of Instrument Making, Automation Equipment, and Control Systems, Ministry of the Chemical Industry, and Ministry of Ferrous Metallurgy, as well as those of the RSFSR Ministry of the Fertilizer Industry, Ministry of Trade, Ministry of the Fish Industry, Ministry of Education, and Ministry of Higher and Secondary Specialized Education have rightfully submitted complaints against the leading officials of sectors and departments for not striving persistently enough to improve housing conditions for their own employees. While the plan for introducing housing from funds earmarked for residential construction during these two years was fulfilled in toto, 900 million rubles remained unused in certain oblasts, krays, and autonomous republics. With this money we could have built 66,000 apartments, which is equivalent to a city with a population of 200,000. Obviously, far from all local and departmental officials have fully recognized the entire significance and urgency of solving the apartment problem; the "residual principle" is still in effect, and the demand for fulfilling housing-construction plans have been lowered.

Under Russian conditions the problem has been complicated by a number of factors, included among which are the demographic features of various rayons, a great unevenness in providing housing for the territory, the necessity for developing new regions, a great deal of transport construction, a varies level of development of the home building base, etc.

*And so what is the conclusion?*

Nowadays it is extremely important, along with resting on the laurels of our achievements, to objectively evaluate what has been accomplished, discover unused reserves, and outline precise ways to satisfy the most important need of millions of families—to have high-quality, up-to-date shelter. Obviously, the principal organizing document must be the "Housing-2000" program, which was drawn up with the broad-based participation of labor collectives in every rayon, city, and village. The republic's Gosplan, in conjunction with the Soviets of People's Deputies, ministries, and departments, has nearly completed working out such a program for the region as a whole.

*How should we build up small cities?*

For decades the sectorial principle of developing the national economy impelled economic managers to build new enterprises in big cities. And where there had been no intensive development of industry no base for social development was created. Today about 800 small and medium-sized Russian cities have virtually no base for industrial-type home building. All their hopes have been placed on the favorable disposition of contractors from the oblast center, for ad hoc, one-time aid in the form of supplying one or two large-panel apartment houses per five-year plan. Among the ispolkom and construction officials a durable stereotype has evolved, according to which only a large home-building combine can be profitable and guarantee a high quality of housing construction. But here they somehow have failed to take into consideration either transportation costs, which are very great in shipping panels over distances of tens and hundreds of kilometers, the technological flexibility of smaller plants, the possibilities of a collective contract, or the interests of the product's consumer—the city itself. Hence the featureless quality of the construction build-up began to flourish. The way out of this dilemma is to be seen in the most rapid possible creation in each city and large population center of its own home-building base—diverse in form, flexible, with the cooperation of the forces and funds of the local organizations.

*How should we overcome shortages of bricks and lumber?*

There is another, no less important aspect of the problem. The expansion of individual-type housing construction and the striving for architectural diversity of form have heightened interest in small-piece wall materials, primarily in bricks, air-entrained silicate-concrete, and plaster-filler blocks. And, although five times as many

## 63 CONSUMER GOODS, DOMESTIC TRADE

bricks are produced in the Russian Federation as in the United States, there is still a shortage of them. And, for the most part, their quality leaves much to be desired. Furthermore, more than 60 percent of the bricks are fired in annular kilns under onerous working conditions. So what needs to be done? We must increase brick production by making better use of existing capacities. We must introduce up-to-date plants more rapidly.

Everyone understands that a contemporary, well-laid-out dwelling is not merely walls and a roof over one's head. Sanitary-engineering items, linoleum, elevators, bathtubs, and the like are required in order to supply and outfit apartments well. It must be said that last year customers and contractors encountered serious difficulties because of shortages of the above-indicated materials and equipment. Unless decisive measures are taken, these shortages could become a serious "brake" on housing construction. Of course, certain steps are being taken centrally. Thus, provision has been made to introduce the capacity for producing 700,000 bathtubs a year in Lipetsk. Matters are worse with regard to linoleum production. The Ministry of the Chemical Industry does not provide even the existing enterprises with a sufficient amount of the raw materials. To wait and continue to purchase linoleum abroad is quite unsuitable. We must modernize our own country's reserves.

We have splendid examples of sheet-type parquet being manufactured from deciduous trees, and this is within the capacity of practically any wood-processing plant or carpentry workshop. In order to stimulate interest in developing such production, it would be feasible to leave under regional disposition the items and materials whose output has been organized upon the initiative of the local soviets. This, of course, is not the only reserve.

### *What are the possibilities for industrial and cooperative types of construction?*

The question of developing individual construction is an extremely important one. On this score a special decree was recently adopted by the CPSU Central Committee and the USSR Council of Ministers. It has outlined effective measures for stimulating this matter. What is the situation in the Russian Federation? To put it straightforwardly, it is not a happy one. The greatest amount of individual housing construction was achieved during the Sixth Five-Year Plan (1956-1960), when Russia, using the population's own funds and state credit, witnessed the construction of 128.6 square meters, which constituted 45.8 percent of the total housing introduced. Since that time a significant decline has occurred. Thus, during the 11th Five-Year Plan individual, do-it-yourself builders accounted for the construction of only 19.2 million square meters of housing, and together with cooperatives the total was 33.9 million square meters. But, you know, during the same period the population's total deposits in savings banks increased many times over. Could this not be a reserve

for financing additional housing construction? I understand that not everyone has sufficient savings. The state offers credit with the repayment to be made in installments extending over 25-50 years. At present the Russian Federation intends to introduce individual houses with a total space of 5.1 million square meters, which is 19 percent more than the volume for 1987. The number of individual, do-it-yourself builders accounted for the construction of only 19.2 million square meters of housing, and together with cooperatives the total was 33.9 million square meters. But, you know, during this same period the population's total deposits in savings banks increased many times over. Could this not be a reserve for financing additional housing construction? I understand that not everyone has sufficient savings. The state offers credit with the repayments to be made in installments extending over 25-50 years. At present the Russian Federation intends to introduce individual houses with a total space of 5.1 million square meters, which is 19 percent more than the volume for 1987. The number of individual do-it-yourself builders will gradually increase. It is proposed that in 1990 they will account for the construction of 8.9 million square meters.

I am profoundly convinced that we are making poor use of the possibilities of increasing housing construction by means of housing cooperatives. During the 11th Five-Year Plan the volumes even decreased by a factor of 1.5 in comparison with the Eighth Five-Year Plan. But the waiting list for those wanting housing has not been reduced. Where do the "braking factors" lie here? Since they do not obtain 10 percent of the housing, builders are not burning with desire to see a ZhSK [home-building combine] as their customer. Moreover, the city authorities have also done quite a bit in putting up obstacles in setting aside a section and in planning. The investment cycle of a ZhSK sometimes lasts 5-6 years or more, whereas the time period for the construction of a large-panel apartment house does not exceed six months. I would like to request the readers to make their own comments, which could radically alter the situation in this type of construction. Perhaps we could even provide simply for the possibility of selling a portion of the constructed houses and apartments to construction cooperatives.

A question of cardinal importance is the creation of housing complexes for young people. They will now provide approximately 1.3 million square meters of housing space. That seems like quite a bit, but, you know, it is less than 2 percent of the total amount. Obviously, a young people's initiative has not found support everywhere—far from it. Now, in accordance with the Law on State Enterprises, the right to create an MZhK [housing complex for young people] is being transferred from the ministries to the labor collectives. A favorable possibility is opening up to increase the construction volumes of housing cooperatives for young people several times over. All of us need to get together and think out some practical steps for solving this problem in each specific collective.

## 64 CONSUMER GOODS, DOMESTIC TRADE

In my opinion, we have unjustifiably consigned to oblivion the tradition of our fathers and grandfathers, who created their own houses by the method of people's construction, or, as it used to be designated, "by the entire community" [mir]. To resurrect this fine tradition—and not only in the village but also in the city—constitutes an important social task. Of course, taking into account the new living conditions and specifics circumstances. Such an experiment is gathering force. In Moscow Oblast and a number of other oblasts future new homeowners are actively participating in the final stage of building multi-story houses; the economic mechanism for their reciprocal relations with the builders has been worked out on a long-term basis.

### *What should we do with old houses?*

An extremely important reserve for solving the housing problem, in our view, lies in increasing the volume of the capital repair of the housing stock, as well as communal and sociocultural types of facilities. A complex of problems has piled up here. For example, there are still quite a few houses of pre-revolutionary construction. Some have a corridor system; others are densely inhabited, with a large number of rooms; while a third group have long been in need of repair. Many houses can and should have stories added on top of them or added on to their sides or backs. In such old city districts difficulties with water-, heat-, energy-, and gas-supply systems are felt with particular keenness. In our opinion, the development of engineering facilities would allow us to build without great expenditures thousands of apartments in old houses by means of their capital repair, or modernization, or erecting additional stories or annexes. All of this must be provided for in the local comprehensive programs for guaranteeing every family a separate apartment or an individual house.

### *How can we better dispose of our existing housing stock?*

There are also reserves whose utilization does not require capital investments and material expenditures but instead facilitate the improvement of citizens' housing conditions by means of exchanging apartments. Unfortunately, people encounter great difficulties on this path. They are hampered by difficulties of legal procedures and other problems which require immediate solution. Recently the RSFSR Council of Ministers gave permission to the Krasnodar Kraiispolkom to create a buro of mediation services with regard to exchanging housing in a number of this kray's cities, based on cost-accounting principles. Let's try to simplify the procedure for exchanging housing, both that of the state and that which is the private property of the citizens themselves. This would allow many thousands of citizens to improve their own housing conditions. Nowadays, in order to exchange a home measuring 60 square meters with a family consisting of two persons for a one-room or two-room apartment measuring 20-27 square meters

which is inhabited by five persons, permission from the republic's Council of Ministers is required, since the housing legislation does not provide for such an exchange. At first the owners of these houses appeal to the gorispolkom, then to the obisplokom, and finally to the RSFSR Council of Ministers. Can such a multi-level system of permission really be regarded as normal?

There is another aspect to the problem. At the present time most of the intermediary services do not have any reserve housing stock for exchanges. The availability of such stock would allow the Moscow Exchange Buro to put additional housing into the "treasure" of the Mossoviet.

### *What kinds of apartments do we need?*

Of great importance is the ratio of the number of various apartments in buildings under construction. In other words, the structure of apartments in apartment houses should take demographic factors into consideration. At the present time in most of the RSFSR's cities in houses constructed in accordance with standard designs there is a predominance of two-and three-room apartments, despite the great need for one-room apartments. The reverse is sometimes also true. Thus, in the North Caucasus region the need for apartments with many rooms is considerably greater than in the republic's other regions. How should we solve this problem? What is required here is development of the design organizations of the State Committee for Architecture and those of the local design buros, which have now been given the right to make changes in a design. We need flexibility and mobility on the part of the principal contracting organizations which administer the base of large-panel apartment-house construction. We require a rapid refurbishing of the forms at the home-building enterprises; this will make it possible to more rapidly change the products list of the items being turned out and the building of various types of houses.

### *How should we improve the architectural appearance of the new neighborhoods?*

Nowadays dissatisfaction with the architectural appearance of our cities and housing is growing increasingly greater. The greater the scale of industrial-assembly-line home building, the more monotonously similar in form is the building up of the neighborhoods. Many questions are being asked: will the architecture change, or will it remain faded and unattractive? I am confident that, with the availability of this same home-building base, we can and must build better and with a higher quality, formulate such an urban architecture which would create a splendid environment for residential living. There are already quite a few such examples in the RSFSR, as well as in other union republics.

## ENERGY COMPLEX ORGANIZATION

**Atomic Power Industry Safety Regulations Passed**  
*18220064 Moscow SOBRANIYE POSTANOVLENIY  
PRAVITELSTVA SOYUZA SOVETSKIKH  
SOTSIALISTICHESKIKH RESPUBLIK in Russian  
No 2, 1988 pp 19-29*

[USSR Council of Ministers Decree: "Ratification of Disciplinary Statute for Workers in the USSR Gosatomenergonadzor [All-Union State Committee for Safety in the Atomic Power Industry] System"]

[Text] The USSR Council of Ministers decrees:

The ratification of the proposed Disciplinary Statute for Workers in the USSR Gosatomenergonadzor system.

USSR Council of Ministers Chairman — N. Ryzhkov

USSR Council of Ministers Affairs Administrator — M. Smiryutnikov

Moscow, Kremlin. 18 Nov 1987, No 1299.

### Disciplinary Statute for Workers in the USSR Gosatomenergonadzor System

#### I. General Provisions

1. The accomplishment of state surveillance of the safe conduct of operations in nuclear-power engineering at the facilities under the monitoring of USSR Gosatomenergonadzor organs requires of workers model organization, discipline, a responsible attitude toward one's duties and high moral and political qualities.

The inappropriate fulfillment of duties by workers of the USSR Gosatomenergonadzor system diminishes the effectiveness of state surveillance of safety in nuclear-power engineering and can be the cause of emergencies and accidents, pollution of the environment, threaten the life and health of people and inflict considerable harm to socialist property and the property of citizens.

2. Discipline in the accomplishment of state surveillance of the safe conduct of operations in nuclear-power engineering consists of workers' strict observance of the procedures and rules stipulated by legislation in force, the orders and instructions of USSR Gosatomenergonadzor and other legal documents relating to their activity, the conscientious fulfillment of the official duties charged to them, an intelligent and creative attitude toward their work and the discovery and elimination of shortcomings, as well as the precise and timely execution of the orders and directives of supervisors.

Discipline is ensured by an intelligent attitude toward labor, the cultivation of high moral, ideological and business qualities among workers, the development of a feeling of responsibility for the fulfillment of labor

obligations, exactingness by supervisors, the skilled combination and correct application of persuasion, encouragement and disciplinary action and the effective influence of labor collectives on the awareness and behavior of each member of the collective.

3. This Statute extends to the inspectional and supervisory staff and other specialists of the regional organs of USSR Gosatomenergonadzor and to the workers of the central apparatus of the Committee accomplishing state surveillance of the safe conduct of operations in nuclear-power engineering.

The discipline of workers to whom this Statute does not extend is regulated by the rules of internal labor regulations.

4. The USSR Gosatomenergonadzor worker is obliged:

a) to possess high professional training, know well the matter entrusted to him, execute the duties charged to him in precise and timely fashion, display the essential initiative in work, a creative attitude toward labor, constantly perfect his professional skills and raise his business qualifications;

b) to know and unswervingly observe the appropriate rules, norms and instructions for the safe conduct of operations, technological regulations and other legal documents relating to his labor activity;

c) regularly to observe the conduct of operations at facilities being monitored, formulating the results of observations under the stipulated procedure;

d) to discover the reasons and conditions that facilitate the appearance of emergencies and threaten the life and health of people or pollution of the environment and to take steps to eliminate them;

e) to strive for the strict observance of stipulated rules, norms, instructions, technological regulations and other legal documents on safety in nuclear-power engineering by the workers of facilities being monitored, give the officials of facilities being monitored directives under established procedure for stoppages of operations that are leading to violations of safety norms, and in the event of necessity to stop such operations;

f) to make full use of the rights granted to him, facilitate the aversion of emergencies, raise the reliability and safety of the operation of equipment and systems at facilities being monitored and strive for the timely and complete fulfillment of the prescriptions of USSR Gosatomenergonadzor organs by officials;

g) to verify the timeliness and correctness of the fulfillment of measures to ensure the reliability and safety of the operation of nuclear-power facilities and to avert emergencies.

Presence at the request of the administration to eliminate emergency situations or to avert them is compulsory;

h) to further the incorporation of the latest achievements of science and technology at facilities being monitored that are aimed at raising the reliability and safety of operations, improving working conditions and strengthening the protection of the environment at those facilities;

i) to maintain constant operational ties with other state surveillance organs, public organizations and organs of people's control, making use of their assistance in accomplishing their functions;

j) actively to propagate the positive experience of operations in the realm of the safe conduct of operations in nuclear-power engineering;

k) to observe executive discipline, stipulated procedures for the storage of documents, display vigilance and strictly preserve state and official secrecy;

l) to give examinations under stipulated procedure in the knowledge of the rules, norms and instructions for the safe conduct of operations in nuclear-power engineering.

Individuals that do not pass the examinations are not permitted to work in the surveillance of the safe conduct of operations in nuclear-power engineering and are transferred with their consent (temporarily, until the examination is passed) to other duties with salary payments for the work being done. In the event of the worker's refusal to be transferred, the supervisor can annul the labor contract with him under established procedure;

m) to observe unwaveringly the procedures and rules stipulated by existing legislation and the orders and instructions of USSR Gosatomenergonadzor and other standard documents relating to his activity and to fulfill the orders and directives of supervisors in precise and timely fashion;

n) to observe the rules of socialist communal living and the norms of communist morality, to conduct oneself with dignity at work and outside of work, to restrain other workers from violations of labor discipline and public order and to assist the reinforcement of discipline in the labor collective.

##### 5. The supervisor is obliged:

a) to organize the work of subordinates and mutual relations within the collective correctly, to ensure a rise in the quality of work and the incorporation of the scientific organization of labor and management;

b) to cultivate among subordinates an intelligent attitude toward labor, high moral, ideological and business qualities, to support the initiative and creative activeness of the workers and to further their participation in discovering and eliminating shortcomings;

c) strictly to observe the requirements of socialist legality, issue orders and directives to subordinates clearly and to verify the precision and timeliness of their execution;

d) to take all essential steps to reinforce order and discipline and to reduce losses of work time and personnel turnover;

e) skillfully to combine exactingness toward subordinates with concern for them, to be sensitive to people and their needs and aspirations, to encourage workers that have distinguished themselves in the fulfillment of labor duties and social duty and to reproach strictly the violators of discipline, taking the opinion of the labor collective into account therein;

f) to bring the contents of legal documents relating to the activity of the workers to their attention in timely fashion;

g) to set an example for subordinates of the model execution of official duty and dignified behavior both at work and on non-work time.

The supervisor bears responsibility for the state of discipline among the subordinates, as well as for his failure to fulfill the obligations charged to him by this Statute.

The especial attention of the supervisor should be directed toward the timely discovery and elimination of the causes and conditions that cause disciplinary violations, the aversion of misdemeanors by subordinates, the creation of an intolerant attitude toward disciplinary violations and the utilization of the forces of social influence in the fight against these violations.

6. The worker, as a rule, receives any work directives from his immediate supervisor. In the event of the receipt of directives from a higher supervisor, the worker is obliged to fulfill them and to inform his immediate supervisor of them.

7. Every worker to whom this Statute extends is obliged to know the Statute and to fulfill precisely its requirements.

##### II. Incentives

8. Workers to whom this Statute extends are given incentives for the model fulfillment of labor duties, the improvement of work quality, innovation in labor, the display of initiative, selflessness and resourcefulness in work and continued and irreproachable work in the organs of USSR Gosatomenergonadzor.

9. The following incentives are employed in regard to workers:

- a) expression of gratitude;
- b) payment of bonuses;
- c) awarding of a valuable gift;
- d) awarding of a testimonial;
- e) entry into the Roll of Honor or onto the Board of Honor;
- f) granting of the title of best worker in the given profession or other titles for success in work.

The simultaneous use of several incentives for a worker is permitted.

10. Workers who successfully and conscientiously fulfill their labor obligations are granted preference and advantages in the realm of social, cultural, housing and domestic services, as well as advantages in work advancement.

Workers may be submitted under stipulated procedure for state awards of the USSR and the union republics for outstanding achievements in labor and the manifestation of selflessness, heroism and valor.

11. Incentives are employed under the following procedure:

- a) Every supervisor has the right to express gratitude to subordinate workers. The expression of gratitude in an order is accomplished in coordination with the corresponding trade-union committee;
- b) the issue of bonuses and valuable gifts is done by supervisors that have the right to hire and have control of the funds designated for these purposes in conjunction with the corresponding trade-union committee;
- c) the awarding of a Testimonial or entry into the Roll of Honor or onto the Board of Honor is done by supervisors that have the right to hire in conjunction with the corresponding trade-union committee;
- d) the awarding of a Testimonial of USSR Gosatomenergonadzor, the conferring of the title of best worker for the given profession or other titles for work success are done under stipulated procedure.

Incentives, aside from oral gratitude, are announced in an order and are entered into the worker's work booklet.

An order of incentive is brought to the attention of the whole collective.

12. In the absence of the appropriate supervisor, incentive measures can be employed by the officials fulfilling their duties.

13. If an incentive must be employed for a worker that goes beyond the bounds of the rights granted to the supervisor, he petitions a higher supervisor.

A higher supervisor enjoys the rights of lower supervisors to grant incentives to the full extent.

The chairman of the USSR Gosatomenergonadzor and his deputy have the right to employ all of the incentives stipulated in this Statute.

### III. Disciplinary Actions

14. The following disciplinary actions are employed for violations of labor discipline:

- a) reproof;
- b) reprimand;
- c) strict reprimand;
- d) warning of incomplete official conformity;
- e) transfer to a lower-paying job for up to three months or demotion for the same period.

A worker can be transferred to another lower-paying job or demoted for up to three months for systematic violations of labor discipline, absences without valid reason or appearance at work in an intoxicated state;

e) dismissal.

Only one disciplinary action may be employed for each violation of labor discipline.

15. Transfer of a worker to a lower-paying job for up to three months or demotion for the same period of time is carried out with a regard for the profession (field), while in the event of systematic violation of labor discipline, absences without valid reason or appearance at work in an intoxicated state, they may be carried out without regard for the profession (field).

The transfer of a worker as a disciplinary action to work that is counter to his state of health according to medical conclusion is not permitted.

Workers executing the surveillance of the safe conduct of operations in nuclear-power engineering that are transferred to lower-paying work or are demoted for up to three months are obliged to pass examinations on their knowledge of the rules, norms and instructions for the safe conduct of operations before their restoration to the former post.

A worker who has twice failed the examinations is transferred with his consent to other work with a regard for his field and qualifications, and in the event of his rejection of a transfer, he may be dismissed under the procedure stipulated by existing legislation.

16. Disciplinary action in the form of dismissal may be employed with regard to a worker:

—for his systematic failure to fulfill his duties without valid reason, if disciplinary or social action had earlier been taken against him;

—for absences (including absences from work of over three hours in the course of a workday) without valid reason;

—for appearing at work in an intoxicated state;

—for repeated gross violations of discipline that threaten the operational safety of nuclear-power plants and other facilities of nuclear-power engineering or that create a danger to the life and health of people;

—for committing theft in the workplace (including petty theft) of state or public property and stipulated by a court order or a decree of an organ taking effect under whose purview falls the imposition of administrative actions or the employment of measures of social influence.

The dismissal of a worker is carried out in coordination with the trade-union committee, with the exception of instances envisaged by existing legislation, as well as instances of gross violations of discipline that threaten the safe operation of nuclear-power plants and other nuclear-power facilities or that create a danger to the health and life of people.

The list of gross violations of discipline that threaten the safe operation of nuclear-power plants and other nuclear-power facilities or that create a danger to the life and health of people, as well as the categories of workers that are dismissed for these violations without the coordination of the trade-union committee, is approved by the USSR Gosatomenergogradzor in coordination with the central committee of the trade-union for the workers of medium machine building.

17. The employment of disciplinary action does not release the worker who committed the offense from the material and administrative responsibility stipulated by existing legislation, as well as from being combined under stipulated procedure with the full or partial deprivation of bonuses and the limitation of privileges in the realm of social, cultural, housing and domestic services.

18. The supervisor may not leave a single offense by a subordinate without action.

In the event it is not expedient to employ disciplinary action, the supervisor should warn the worker of the necessity of the strict observance of discipline or transfer the question of the offense to the consideration of the labor collective, comrades' court or social organization.

19. The worker cannot be subjected to disciplinary action in the form of a warning of incomplete official conformity if the un conformity that was detected in the post occupied or the work being fulfilled is caused by insufficient qualifications or a state of health that impedes the fulfillment of the given work.

20. In the imposition of disciplinary action, the supervisor is obliged to observe the rules of official ethics and not to permit the diminishment of the dignity of the subordinate.

21. The disciplinary action should correspond to the degree of guilt of the worker and the severity of the offense he committed.

In determining the measures of disciplinary action, the harm inflicted by the given offense, the circumstances under which it was committed and the motives of the offense, as well as the previous work of the individual who has committed the offense, should be taken into account.

22. Disciplinary action is employed under the following procedure:

a) oral reproof to the subordinate may be made by every supervisor;

b) a supervisor who has the right to hire a worker and superior supervisors can impose any of the disciplinary actions stipulated by Clause 14 of this Statute on a worker.

The deputies of the indicated supervisors in areas of departmental activity subordinate to them can impose actions in the form of reproof, reprimand and strict reprimand;

c) a supervisor who has the right to promulgate orders can impose actions in the form of reproof, reprimand and strict reprimand on those of his subordinates that were assigned to their post by higher supervisors.

23. In the absence of the appropriate supervisors, disciplinary actions can be taken by the officials fulfilling their duties.

24. If it is necessary to impose disciplinary action with a regard for the severity of the offense that the given supervisor does not have the right to impose, he petitions a higher supervisor.

25. In cases where the law envisages criminal liability for the offense committed, the supervisor is obliged to transfer the corresponding materials to organs of inquiry or preliminary investigation.

26. The supervisor is obliged to investigate in comprehensive and objective fashion the motives and reasons for the offense committed before the imposition of disciplinary action and to require of the worker who committed the offense an explanation in written or oral form.

Where it is necessary to employ the disciplinary actions envisaged by Subclauses D, E and F of Clause 14 of this Statute, the explanations are only in written form.

The refusal to give a written explanation does not release the guilty worker from disciplinary liability.

27. Disciplinary action, except for oral reproof, is announced in an order with which the worker should be familiarized and should sign within a three-day period.

28. Disciplinary actions are imposed no later than one month from the day the offense was discovered, not counting time of worker illness or his absence on leave.

In the event of the transfer of materials to organs of inquiry or preliminary investigation, as well as consideration by the labor collective, comrades' court or social organization, the disciplinary action is imposed no later than one month from the date of the rejection of the institution of criminal proceedings, the closing of the criminal case or the passage of a resolution by the labor collective, comrades' court or social organization on putting the question of the application of disciplinary measures before the appropriate supervisor.

A disciplinary action cannot be imposed later than six months from the date the offense was committed, while upon the results of a review of financial and business activity and for omissions in the accomplishment of state surveillance of the planning and construction of nuclear-power facilities and the design and manufacture of equipment for them, no later than two years, from the date the offense was committed. These time periods do not include the time for conducting the case under criminal procedure.

29. A higher supervisor has the right to abrogate, lessen or strengthen (within the bounds of the rights granted to him) a disciplinary action imposed by a subordinate supervisor if he finds that the action does not correspond to the severity of the offense.

The strengthening of a disciplinary action is not permitted if the issue of the imposition of the action is considered at the appeal of the worker.

A strengthening of a disciplinary action can be done only within the bounds of the time periods stipulated by Clause 28 of this Statute.

30. The Chairman of the USSR Gosatomenergonadzor has the right to impose disciplinary actions stipulated by this Statute to the full extent, and his deputy can impose all disciplinary actions aside from the demotion, transfer and dismissal of individuals assigned by the Chairman.

31. A worker is considered not have a disciplinary action if over the course of a year after the imposition of the action he has not been subjected to a new disciplinary action; this does not, however, entail the restoration of a worker who was dismissed in accordance with this Statute to his former position.

32. A supervisor who has imposed a disciplinary action on a guilty worker, or a higher supervisor, can remove this action for up to a year if the worker merits it through a conscientious attitude toward his work and has not committed a new disciplinary violation.

A request for the early removal of disciplinary action should be considered by the supervisor no later than 15 days from the date it is filed.

33. Over the period the disciplinary action is in effect, the incentive measures stipulated by this Statute are not employed in regard to the workers.

34. The worker can appeal an action within three months from the day he is familiarized with the order imposing the disciplinary action on him.

The appeal does not halt the execution of the order for the imposition of disciplinary action.

#### IV. Concluding Provisions

35. A worker's appeal of an illegal or unlawful imposition of disciplinary action or a supervisor's violation of the rights granted to him by this Statute or his failure to fulfill his obligations is considered by a higher supervisor.

36. The higher supervisor is obliged to consider the appeal in comprehensive and objective fashion and to issue his decision without delay, but no later than 15 days from its receipt.

The higher supervisor is obliged to inform the interested worker and supervisor whose actions are being appealed of the results of the consideration of the appeal.

37. A supervisor who does not make use of the disciplinary rights granted to him or exceeds them bears responsibility for this under established procedure.

38. Every higher supervisor carries out continuous monitoring of both the overall state of discipline and the unswerving and correct implementation by all supervisors of the rights granted to them by this Statute and the duties charged to them.

12821

## FUELS

### Future of Coal Mining Examined

18220055 Moscow UGOL in Russian No 1, Jan 88  
pp 9-13

[Article by Doctor of Technical Sciences A.S. Burchakov, MGI [Moscow Mining Institute]: "The Scientific Principles of Creating the Mine of the Future"; UDC 622.33.012.2"313"]

[Text] **The Coal Industry of the Future.** A trend toward a decrease in the share of coal in the fuel equation is being noted in the principal coal-producing countries. In certain countries, this relative decline in the share of coal in the fuel equation is being accompanied by an absolute decline in coal production, and in others by a decline in the growth rate of coal production. This is also true in relation to coal and nuclear power, and in the future fusion power, in the fuel equation. The cause of this situation is the high labor-intensiveness of the production, transport and utilization of coal and its byproducts.

Coal obtained through strip mining is a competitor of that extracted from underground. The lower labor-intensiveness of open-pit coal production is not the only advantage herein. No less important is the fact that better working conditions are provided in strip mining. Notwithstanding all of the unfavorable circumstances that have been noted, there are serious grounds to assert that in the future the situation will be markedly altered in favor of coal, including that extracted from underground. Mining science should indicate the direction of realization of the possible opportunities of this method.

Among the essential preconditions for raising the role of coal in the national economy are reducing the labor-intensiveness of its production accompanied by a rise in the degree of labor safety and sharply improving the transportability of coal and the convenience of its utilization by the consumer. In other words, coal should be upgraded.

Coal that is transformed into combustible gas or liquid is elevated to the same level as methane or petroleum in its transportability and conditions of utilization. The processes for the chemical refining of coal will become much more economical in the near future than they are today, and thus work being done both in the USSR and abroad on the chemical as well as the mechanical upgrading of coal seems promising.

The situation could change markedly in the case where the refinement of coal at enrichment plants ends with its crushing to the grain size needed by the consumer and the formation of a transportable coal-water mixture. Coal in the form of a water-coal mixture can be transported great distances in coal pipelines. This is more advantageous than transporting gas in gas pipelines (as a consequence of the greater calorific value of the water-coal mixture per unit volume) and oil in oil pipelines (due to its lesser viscosity and greater transport speed).

Coal that has been enriched and brought to screened composition in the form of a coal-water mixture acquires new properties that make it competitive in relation to other types of fuels and chemical raw materials. The possibility of the immediate transformation of the chemical energy of coal into electrical energy should be foreseen in the distant future; the non-power utilization of coal will be developed in the foreseeable future.

One incentive for the development of underground coal production is its higher quality and the more advantageous territorial disposition of the fields in our country. The mechanical and chemical refinement of coal into water-coal and combustible mixtures suitable for utilization could introduce material changes into the coal-utilization equation compared to other types of fuels and chemical raw materials. Apropos of coal extracted from underground, these changes could have material significance in the case of a considerable reduction of the labor-intensiveness of its extraction and the assurance of safe and favorable working conditions, which signifies in practice the output of a possibly greater quantity of coal to the surface in mechanical upgrading, and the removal of all technological processes and equipment, as well as the complete withdrawal of all workers, to the surface in chemical upgrading.

**The Coal Mine of the Future.** Analysis of the changes in the principal technical and economic indicators of the coal industry in the USSR over the last 25 years (Fig. 1) shows that coal production, mine and longwall utilization and stoping speed increased insignificantly over that period. The capacity of the enrichment plants increased many times over, despite the fact that only coking coal is fully enriched in the USSR, and boiler coal is only partially enriched. A comparison of the results of this analysis with the results of coal-industry operations in West Germany (Fig. 2), which industry developed under more favorable geological conditions, shows that the USSR coal industry lags in the rate of raising technical and economic indicators, the absolute value of which (with the exception of coal production volume) are lower than in the FRG.

The purpose of the analysis is to show that the changes in the rate of technical progress in the coal industry that are essential for a considerable increase in the absolute magnitude of these indicators is possible only on the basis of qualitative changes in the technology of coal production.

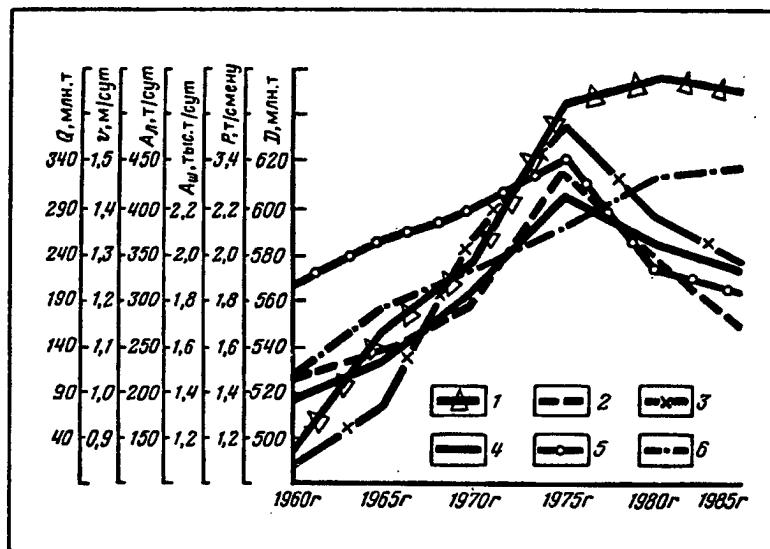


Fig. 1. Dynamics of the Principal Technical and Economic Indicators of USSR Coal Industry Operation for 1960-85:  
1—coal production  $D$ , millions of tons; 2—worker labor productivity in production  $P$ , tons per shift; 3—mine utilization  $A_m$ , thousands of tons per day; 4—longwall loading  $A_w$ , tons per day; 5—stooping operations advance speed  $v$ , meters per day; 6—processing mill capacity  $Q$ , millions of tons.

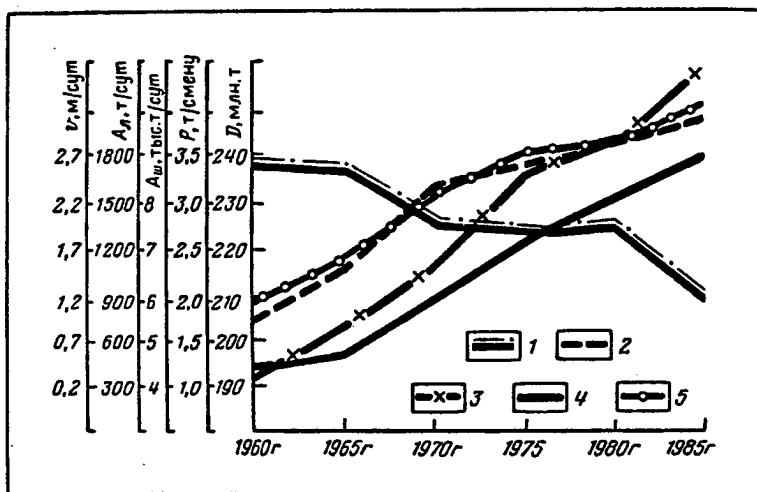


Fig. 2. Dynamics of Changes in the Principal Technical and Economic Indicators of FRG Coal Industry Operation for 1960-85. 1-5: same as for Fig. 1.

The change of technology in conversion from underground coal extraction to open-pit is a qualitative one. An increase in the proportion of open-pit coal production in the overall production volume is an important measure for raising the technical and economic indicators of the coal industry in the USSR, since our country possesses large reserves of coal that are suitable for strip mining. They are, however, of relatively poor quality and are situated unfavorably in a territorial sense.

A change in technology in the conversion to hydro-mechanical underground coal production is a qualitative one. The advantages of this type of technology are: an organic link with the technologies of the transport of extracted coal to the enrichment plant and its subsequent transport to the consumer; lower applied expenditures in the hydro-transport of coal underground inclined chutes, compressor lifting (airlifting) to the surface in pipelines and non-pressurized hydro-transport in pipelines to the enrichment plant.

At the same time, this technology also has drawbacks: poor operating efficiency of the hydraulic guns; insufficient controllability of the coal-extraction process; suitability for coal extraction only from sloping seams; considerable water consumption; pollution of the workings; and, the creation of unfavorable working conditions in the mine. Hydro-mechanical underground coal production is thus only partially justified, and mechanical-hydraulic extraction is moreover considered more expedient.

In mechanical-hydraulic technology, the processes of coal extraction, its transportation in the stope area and preparatory workings remain mechanical. The process of lifting the coal to the mine surface is accomplished hydraulically by pipeline, as a consequence of which the necessity of transporting the coal across the permanent working recedes. This technology has all the merits of the mechanized and hydraulicized technologies.

We will consider those new technical solutions that are possible in opening up an underground coal field and its preparation for extraction and optimization apropos of the Yerunakov Field, a typical one in the Kuzbass (the Chicherbayev section). This field is in the form of a syncline consisting of a formation of seams that are expediently developed by two inclined shafts from both sides of the syncline along its smaller axis and two crosscuts traversing the seams suitable for extraction. The preparation of the seam can be accomplished with capital drifts running along the seam. The seam should be worked by longwall both along the strike and along the dip and the rise (the loading of the coal removed onto the stope conveyor in extraction along the strike, however, is more reliable). It should be expected that the length of the longwall will grow to 500 m [meters] and more.

The loading at the longwall predetermines all of the principal technical and economic indicators of underground coal production. Its magnitude is limited only by hydro-technical factors. There are no economic limitations in the availability of demand for coal whatsoever. An increase in loading at the longwall to 10,000 tons a day should be expected in the foreseeable future.

A reduction in the number of longwalls with stable longwall loading improves these indicators somewhat, but a considerable reduction in the number of longwalls reduces the reliability of the fulfillment of the mine's stipulated plan. More preferable from this point of view are two-four longwalls with a mine loading of 20,000-40,000 tons a day. The annual operating regimen of the mine should be stationary, i.e. making it possible to foresee chance manifestations of rock pressure. In order to achieve this, every longwall should operate around the clock over the year. Then annual coal production at the mine will comprise about 14.5 million tons. The weekly longwall operating regimen is currently typified by the presence of a single work-free day each week. It is considered a reserve for the fulfillment of the weekly plan therein. In the mine of the future, a reserve for plan fulfillment will be achieved without detriment to the stationary nature of random manifestations of rock pressure.

The basic daily longwall operating regimen is currently characterized by the following shortcomings: a considerable actual duration of the workday (about 9 hours with a regard for the time spent in the service center and delivery to the workplace); the incomplete utilization of the total duration of the day as a consequence of the presence of non-work time of up to four hours' duration; the existence of unrealized mean run times between failures due to the concentrated nature of the supervision in the course of a work shift; the presence of a repairs and preparatory shift (7 hours) and a three-hour break before the beginning of the work shift, which deprives the random manifestations of rock pressure of the property of stationarity, i.e. makes them unforeseen. These drawbacks are so marked that not one record longwall operates according to schedule, and it is sooner of a planning (theoretical) nature than a real one. More preferable for the mine of the future is a daily work schedule that is typified by: a reduction in the workday to 6 hours; the full utilization of the duration of the day; a deconcentration of supervision with its overall increase to 8 hours with a reduction in the needed mean run time of the equipment between failures by 3.5 times; stationarity of random manifestations of rock pressure; and, the creation of favorable working conditions underground, which would facilitate a decline in personnel turnover in the coal sector.

Means of mechanizing stoping in the mine of the future will be narrow, i.e. more reliable from the point of view of keeping the roof from collapsing as a consequence of a smaller area of exposure. The widespread employment of scraper-loaders should be foreseen. The rate of

advance in stoping operations will increase by no less than an order of magnitude versus what has been achieved. Self-propelled stepping supports will be replaced with self-propelled non-deploying tracked supports that will not pack down the roof in the stope area.

The means of mechanizing tunneling operations will be comprehensive. The complexes will include tunneling units that accomplish the extraction of rock and the erection of supports. The support for development workings at the first stage will remain pliable, but in the future, evidently, the creation of tunneling units that carry out the erection of permanent non-pliable supports that are unable to counter support pressure (this function will be fulfilled by the lead pliable support of stoping operations accompanying the extraction unit) simultaneously with the extraction of rock should be foreseen.

The machine time of mining mechanization equipment currently comprises basically up to 2,000 hours a year. An increase in this time to 4,800 hours is foreseen in the future, but it will grow just to 3,000 hours in the first stage.

In order to pass the essential quantity of air for ventilation through the working with the permissible speed, intermediate airways will be constructed in the longwall and conditions for the concurrent extraction and utilization of methane will be ensured.

The difficulty of using normal-frequency alternating current for the electrification of mines with a regard for the necessity of providing the necessary capacity and overload properties in limited dimensions will be overcome via the application of controlled enhanced-frequency alternating-current drive. The creation of such integrated systems of mechanization, automation and remote control that will make it possible to bring mechanization-equipment operators to the surface and convert the information machinery operating in the adviser mode to a control mode is envisaged.

The consumer's unpreparedness to utilize the coal in the form of water-coal slurry, and the personnel and equipment to operate without a repairs shift, are another obstacle standing on the path of technical progress in underground coal production.

There currently exists definite scientific, technical and organizational potential to surmount the obstacles enumerated above, although their share is not the same apropos of different obstacles and they must be surmounted gradually. It is assumed that overcoming the obstacles on the path of technical progress in underground coal mining will be accomplished in four stages.

Intended in the first stage is the resolution of issues of ventilation via the execution of additional airways and further increasing the reliability of mechanization equipment, as a result of which their operational machine time will increase to 3,000 hours a year.

The preliminary (5-6 years before the working of the section) degassing of the fields using regional methods with the subsequent combination of the methane using physio-chemical and biological methods will be done in the second stage; controlled drive will be used, which will make it possible to increase equipment productivity; reserves in mine productivity in the form of time reserves will be realized.

In the third stage it is intended that the consumer is ready to utilize coal in the form of slurry. The qualifications of personnel and the repair-adaptability of the equipment will make it possible to operate without a repair shift. Machine time will increase to 4,800 hours a year, while the reserve will be conditioned by capacity and equipment reserves.

In the fourth and last stage, the creation of safe and comfortable conditions for working in a methane atmosphere is proposed. The stepping supports will be replaced with tracked ones, and pliable supports for development workings with non-pliable ones. The operators will be brought out to the mine surface, and information machinery will be converted from an advisory operating mode to a control mode.

Indicator	% Realization by Stages				
	0	1	2	3	4
Process efficiency factor of development system, percent	0.7	0.8	0.8	0.8	0.95
Intensiveness of mechanization equipment, tons per minute	2	6	16	12	12
Power-worker ratio in production:					
—in kilowatts	10	30	50	50	80
—in thousands of kilowatt-hours per year	14	200	330	330	550
Level of electrification in extraction of 1 ton of coal, kilowatt-hours	25	30	30	30	50
Worker labor productivity in production:					
—in tons per shift	2.6	22	32	32	49
—in tons per month	56	400	610	610	920

Indicator	% Realization by Stages				
	0	1	2	3	4
Output-capital ratio for 1 ton of annual mine capacity, rubles	60	35	17	17	10
Return on investment per ruble of capital spending, rubles	0.125	0.5	1.0	1.0	1.9

Much time is needed for the completion of all four stages. The conditions essential for the fulfillment of the last stage, however, should be stipulated as early as during the realization of the first stage (for example, a place should be earmarked in the dispatcher accommodations for the installation of the operators' panels brought up to these accommodations).

The technical and economic indicators of underground coal mining will rise to the extent of transition from stage to stage. The table gives an attempt at quantitative description of this process. The number 0 is allotted to the existing situation in underground coal mining: coal is consumed in solid form, the stoping unit is equipped with a stepping support, the supports for development workings are pliable, annual machine operating time for mechanization equipment is 2,000 hours, the mechanization equipment is outfitted with non-controlled drive, the mechanization equipment operators are located underground, the information machinery operates in an advisory mode, the inadequate repair adaptability of the equipment requires the presence of a repair shift and reserves for plan fulfillment are achieved through the presence of reserve time.

The process efficiency factor of the field development system is the ratio of the mass of the run-of-mine coal extracted in stoping operations to the total mass of this coal and coal and rock obtained from the execution of development workings (this factor is analogous to the stripping factor in open-pit mining). This factor approaches 1 in the fourth stage. The intensiveness of the mechanization equipment is expressed as the quantity of run-of-mine coal produced per million. It should be kept in mind that a high intensiveness of rock extraction in the preparations for field development can compensate for an economically poor process efficiency factor (as is the case in open-pit workings). It follows from the table that the intensiveness of mechanization equipment in the third and fourth stages is lower than in the second as a consequence of the rejection of two-sided coal extraction by fast-moving scraper-loader for the purpose of raising coal-loading reliability for the productive face conveyor.

Among the indicators typifying the level of electrification of mining operations are the electric-power/labor ratio in production (according to the absolute magnitude of the capacity at the disposal of the worker in kWh [kilowatt-hours] and the magnitude of electric power consumed in thousands of kWh a year) along with the

ultimate result of electrification—the quantity of kWh of electric power utilized for the extraction of 1 ton of run-of-mine coal. Considering the quantity of electric power consumed, it is not so much the cost of the power (as a rule, this is the smallest component of cost) that should be taken into account as it is the circumstance that increases in this indicator raise the level of technology and, especially, of labor productivity (as a rule, there is a strict correlation between the electric-power/labor ratio and labor productivity, while apropos of underground mining operations the increase in the level of labor protection with increased electric-power/labor ratios is no less important).

A familiarity with the indicators of output-capital ratio and capital-labor ratio shows that increases in productivity and decreases in the cost of coal are achieved with decreased expenditures. This signifies that the payback period for these expenditures is a negative value, i.e. measured by stages, not relatively (in the sense of an acceptable payback period), but rather efficient in absolute terms. From an economic point of view this signifies that they pay back the expenditures of society on measures not immediately associated with coal production (only in the presence of expenditures that have absolute efficiency can society develop on an expanding basis).

Further, all indicators, with the exception of the process efficiency factor, change considerably less in the transition from the third to the fourth stage than in the transition from the initial stage to the third. The following positive results are obtained at this stage:

—the necessity of prolonged preliminary degassing of the coal field is eliminated;

—an increase in the width of the stoping area and stoping operations at a rate of advance that exceeds the rate of destruction of the rock mass immediately under the reinforced section of the roof become possible as a consequence of elimination of the necessity of ventilating the stoping area;

—the number of development workings and the amount of preliminary operations are reduced by roughly two thirds;

—the necessity of conducting preliminary field workings is eliminated completely;

- the number of workers employed in preparatory work is reduced correspondingly;
- the danger of workers underground falling ill from pneumoconiosis and rheumatic afflictions is almost completely eliminated;
- the danger of fires and methane-gas explosions in the mine, corrosion wear on the equipment in the mine and corrosion wear on the equipment in an oxygen-free atmosphere are completely eliminated, and its abrasive wear is also correspondingly reduced;
- the employment of electrical equipment in conventional fashion becomes possible, in connection with which a considerable increase in the rate of technical progress in underground mining should be expected;
- the necessity of constructing a roadway for the ventilating installation to ventilate the mine recedes, and cheaper compressor installations for the concurrent extraction of methane are put into operation, and the consumption of electric power is accordingly reduced by its output in quantities comprising a considerable portion of the electric power consumed;
- an air-lock system is created for the two-way transport of people, equipment and materials that does not permit the penetration of air into the mine atmosphere (according to the model developed for the subways); and
- the essential increase of the methane atmosphere in the mine versus exterior pressure is maintained continuously.

A typical feature of the technology of underground coal production in the fourth stage is the obligatory nature of continuous operations, since only in that case do the unexpected manifestations of rock pressure remain stationary, and the methane essential to compensate for the losses in the lock system, as well as through cracks on the overlying rock, enters the underground workings. The working conditions of the miners improve with the successful incorporation of this technology, and the opportunity appears of attracting to the mines the highly qualified engineering and technical personnel without whom the retooling of underground coal production is impossible in practice.

An underground coal-producing enterprise can reach the highest level in the fifth stage—the stage of the chemical transformation of the coal. Here is where ideas of hydro-technological methods of coal and methane production can be realized: underground gasification, underground extraction, hydrogenation, electrification etc.

**Coal and Methane Reserves in Hydrocarbon Fields.** Coal reserves in the USSR are of varied types of coals—from most young to highly metamorphized. Overall geological

reserves of coal on USSR territory are concentrated in 34 coal basins, at exceedingly large coal-bearing areas and in more than 650 individual fields.

The reduction in coal extraction in the last 20 years was brought about by the growth in overall mine losses. For the Donetskugol Association, for example, with average operating losses of about 10 percent, the total losses grew from 22 to 63 percent in 1985 compared to 1965. The mines of the Kuzbassugol VPO [All-Union Production Association] extracted just 50-percent of balance-sheet reserves, and if one takes into account seams of coal 0.3-1.0-meter thick that are not under development, the losses will be even more considerable.

Large losses were brought about by leaving pillars in disruption zones or other emergency situations (longwall collapse, self-ignition, coal and gas discharges). The width of a pillar at a depth of 800-1,000 meters when using metallic supports should be 60-70 meters (with rock compression resistance of up to 80 megapascals) or 90-100 meters (at resistances of over 80 megapascals). These pillar sizes have a negative effect on the technical and economic indicators of mine operations; in order not to exceed currently permissible coal losses in pillars, their width should be 15-20 meters, which in turn facilitates the resupporting of workings of up to 4,500 kilometers and additional worker liabilities (18-20 percent of all underground workers). The cost of producing 1 ton of coal increases by 15-20 percent thereby.

In analyzing the state of coal losses in a specific plan or at an operational mine, it is expedient to single out losses that are non-recurring, planned in pillars, planned operational ones and those in excess of operational. Despite the fact that the level of coal losses envisaged by the plan is high at operating mines, it is not being adhered to nonetheless. The reserves-extraction factor of the fields reaches 0.4 in some basins.

Coal losses not only lead to irreplaceable national-economic harm from a social point of view (by virtue of the irreplaceability of this type of fuel), but inflict considerable economic harm as well. The negative economic consequences of coal losses are expressed in increasing expenditures for the extraction of 1 ton of reserves (non-productive expenditures for surveying operations, planning, construction, mine reconstruction, the execution and upkeep of workings increase, among others).

According to calculations, reserves of high-quality methane close to the gas reserves of such major gas fields as Shabalin, Gazli or Stavropol are concentrated within the boundaries of a single major gas-bearing coal basin, for example the Karaganda or the Pechora. According to our calculations, reserves of methane roughly equal to the reserves of Zapolye are concentrated in the Kuzbass, while reserves of methane in the Donbass, according to the same calculations, exceed those of the Urengoy field or all reserves of natural gas in the United States.

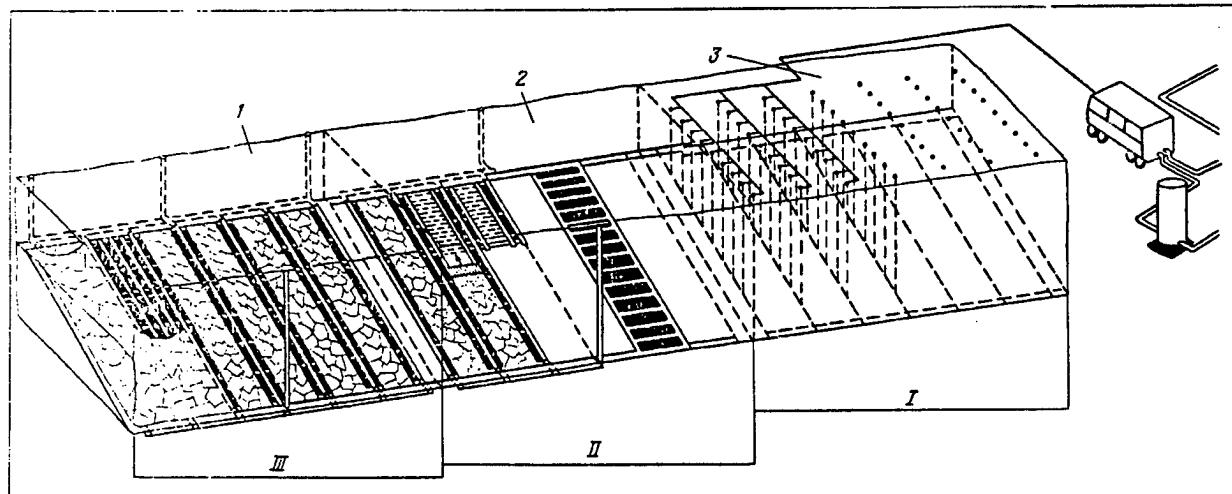


Fig. 3. Process Model for Coalfield Development: 1—heat; 2—coal; 3—methane; I—block 1 (stage 1—methane extraction, Gazugol technology); II—block 2 (stages 2-3—opening, preparation and working of block, Podzemugol technology); III—block 3 (stage 4—coal combustion, Uglegaz technology).

The extraction of methane from coal in coal mines is growing each year and in certain cases is reaching 200-300 square meters per ton of coal produced. The total combustive heat of this gas exceeds 25 percent of the calorific value of the coal itself. In reckoning the reserves of coal fields, the latter must necessarily be considered as integrated fields of not just solid fuels—coal—but also of the more valuable (in calorific value and convenience of utilization) gaseous fuel, the energy of which has so far been lost in the washing by ventilation streams.

Methane reserves in coal seams (when recalculated in standard fuel units) is second to coal among reserves of combustible minerals on the planet and considerably surpasses known reserves of natural gas. Some 2.8 billion cubic meters of methane are extracted from the coal mines of Great Britain each year, along with 4.2 billion in the United States and 7.5 in the USSR. In the separation (concurrent with coal production) of such a considerable amount of methane, it is impossible to skirt the issue of the utilization of this gas in the national economy. In reality, according to reference calculations, the total extraction of methane from the mines of the principal coal basins of the world is reaching 65-70 million cubic meters a day.

The question of extracting metamorphic methane from coal, aside from raising energy reserves, has another important aspect as well. Mine gas has always presented a particular danger to miners. The extraction of the gas makes the work of the miners less dangerous and eases their working conditions.

Both coal and methane should be extracted from the earth; methane is extracted from coal seams and the enclosing rock before the beginning of field development. The complement and sequence of the stages (steps)

of the Gazugol and Szhiganiye of comprehensive extraction of the organic resources of coal-bearing fields follows (Fig. 3): the extraction of methane from the coal-bearing rock mass through a well to the surface; the opening up, preparation and working of coal seams using efficient technology; the preparation of the coal mass for subsequent utilization according to the Szhiganiye technology; the combustion of the remaining reserves.

In the stage of preparing the coal seam for subsequent gasification, measures should be introduced to create fire-safe channels and their working with such substances as would permit the receipt of gas of the necessary quality and complement in subsequent combustion (for example, the working of a seam with steam and hydrocarbon liquids among others). The remaining reserves will be burned at the last stage.

Thus, the new technology uniting Gazugol and Szhiganiye is based on four stages (steps) in field development: the production of methane—technology (Gazugol); underground development combined with open-pit working; preparation for Szhiganiye technology; the application of Uglegaz technology in the development of seams and remaining reserves. This will make it possible to accomplish the practically complete extraction of the whole mass and to convert the sector from a producing to a producing-and-refining one.

The stages of the new technology in a time sense are characterized as follows: the production of methane using Gazugol technology and utilizing gas-yield intensification equipment—3-5 years; the underground development of coal seams combined with open-pit development is defined by the coal reserves and the efficiency of

extraction; the preparations for the Szhiganiye technology—1-2 years; the Szhiganiye technology for reserves is defined by the remaining coal reserves. A decrease in the number of stages or their alteration is possible. Only minerals in solid, gaseous or liquid form that are ready for utilization are extracted from the earth thereby.

The policy of accelerating scientific and technical progress that was adopted at the 27th CPSU Congress is making possible the faster completion of the period of renewal and is bringing the fifth stage closer.

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12821

## ELECTRIC POWER GENERATION

### Rumor of Malfunction at Lithuania's Ignalina Nuclear Plant Squelched

18000293P Vilnius SOVETSKAYA LITVA in Russian 5 Apr 88 p 3

[Article by G. Afanasyeva: "Aloud About Rumors"]

[Excerpts]

—Have you heard that at the Ignalina Nuclear Power Plant they are unable to shut down the reactor? The Japanese have been there for an entire month already, but they can't do a thing.

—What are we going to do?

—A friend of an acquaintance of mine lives in Snehkus. Well, they're already packing their belongings...

(From the conversation of two women on the trolley-bus).

This rumor has been circulating around the republic for several weeks already, growing like fermenting yeast, bubbling, drawing more and more victims into the panic psychosis until emotions are no longer subject to reason. Calls to the editorial office on this topic have also become more frequent. That is why we now hasten to calm all those who are in a panic: "Dear comrades! We declare with total authority: the apocalypse has been called off!" But, so as to further substantiate this, we call on the authoritative information of the republic's chief inspector for environmental protection, P. Luzhinis:

—The reactor was shut down for turbine maintenance, where minor malfunctions had been detected. No increase in atmospheric discharge was registered. The radioactivity level corresponds to that normal in our republic. Incidentally, in the southern regions of the country it is significantly higher.

From our correspondent in Snehkus we found out that life in the city is proceeding at its normal, accustomed pace.

In general, it must be said, that this spring has set the absolute record for the number of rumors of all kinds of cataclysms threatening Lithuania. Recently, the newspaper VECHERNIYE NOVOSTI reported in minute detail a rumor that according to the calculations of the Japanese an asteroid was about to reduce the entire republic to dust and ashes. It would seem that a thorough and quick reply from the newspaper would be sufficient to put an end to such fears. But no! Just as before, readers keep calling the editorial offices, among them SOVETSKAYA LITVA's, all with the same sacramental question: "Can it be true? Why aren't you warning the people?"

Now let's ponder the nature and origins of these apocalyptic rumors. In my opinion, it is a vestige from the time when the mass media reported sparingly about catastrophes and natural disasters so as not to upset the people. These days much is written, but distrust of publications on this account has remained. Many still read between the lines in newspaper articles or apply this old norm: "Read what is written, and then multiply it by three." And rumors have already started to the effect that this is where glasnost is leading us. The less people knew, the more quietly they lived. It seems to me, that glasnost is the only effective weapon capable of killing rumors, even those which at first originate from a certain excess of objective, albeit disquieting information. And this information should not only be timely and scrupulously truthful, but it should speak of life itself, and openly acknowledge what is bad, and what is good. Unfortunately, at present, this is not possible for everyone, not even us journalists.

For the sake of fairness, it should be noted, that at times rumors do expose one problem or another, and that they fill the void, which the mass information media has not managed to fill. But, as the remarkable Soviet journalist and writer Anatoliy Agranovskiy said: "There are no rumors beneficial to us. Rumors are only harmful." So, perhaps instead of preparing ourselves for a cosmic catastrophe, we should instead busy ourselves calmly with the restructuring of that which is bad, and having exposed shortcomings, let's not cry "I give up!", but undertake to eliminate them by action.

## LABOR

### Gosplan Official Critical of Losses in Labor Resources

18280046 Moscow *PRAVDA* in Russian 1 Mar 88 p 2

[Article by I. Malmygin, sector chief of the Council for the Study of Productive Forces at the USSR Gosplan: "Radical Reform: Experience, Problems. It Is Time to Compress the "Discrepancy" Between the Number of Work Places and the Labor Resources"]

[Excerpts] According to the USSR Constitution, our state is the owner of the greater part of the fixed capital. Thus, ministries, associations, and enterprises have been given the right through legislation to create, improve and liquidate buildings, machine tools and machines. But the trouble lies in the fact that, having received the possibility of the disposition of fixed capital, the managers—from ministries to enterprises—as a matter of legislation do not bear any responsibility for the full satisfaction of the needs of the people working in these fixed assets. And must it be said that the "discrepancy" between rights and responsibility, between work places and working hands have given rise to many incongruities in the creation and use of buildings, machines, and machine tools. . . .

One of the results of such a discrepancy: For more than 20 years, the volume of fixed production assets in industry, construction, agriculture, transportation and other sectors has not corresponded to the number of people employed in them. According to our calculations, that excess of assets in industry comes to about 200 billion rubles, and in the national economy as a whole—to approximately one-third trillion!

The peculiarity of the excess fixed production assets consists in the fact that they are concentrated, as a rule, in the new enterprises and shops. In the old ones, the machine shift coefficients and the capacity utilization coefficients are much higher. And here is the paradox: The new and more productive equipment is being used worse than the old. In this the national economy of the country loses more than 7 percent of production and services. It has been losing, so to speak, with increases of the losses, for four five-year plans in succession! But, you see, even in the present five-year plan such losses are being reduced slowly since, as before, the hypertrophically inflated new production construction is continued and, in addition, superfluous obsolete assets are being accumulated simultaneously.

On paper and in the reports, many ministries have committed themselves to withdraw 8-10 percent of the obsolete equipment annually during this five-year plan. But in reality in 1987 every enterprise decreased its quantity on the average by only 1-2 percent. It is clear that this discrepancy must also be compressed.

The excess of assets designated for production not only impedes scientific-technical progress, but also turns into a shortage of assets of non-production designation: Housing, schools, and hospitals. Because of the fact that the shops of plants have been filled chock-full for future use with obsolete machines and machine tools, a large part of the uninstalled equipment lies like dead weight in the warehouses and is spent in vain at construction projects. But, you see, these are assets that belong to the people—and by no means inconsiderable ones, according to the most modest calculations—up to 20 billion rubles.

But as far as the shortages of assets of non-production designation are concerned, they can be determined only by experts. For example, in the majority of the country's oblasts, the shortage of housing comes to 20-25 percent of the requirements. Quite a few families are experiencing a need for comfort. In the cities, nine-tenths of the houses have water supply, sewage systems, and central heat, and 70-80 percent have hot water supply, baths, and gas. In the villages the conveniences are much worse. As a result, only half of the housing in the country corresponds to present-day sanitation and hygiene requirements.

Why has this happened? Once again we must turn to the figures. In the 10th and 11th five-year plans, 100-130 billion rubles a year were directed into the construction of projects of the production sphere and about 5 million superfluous work places were created. At the same time, many times fewer funds were allotted for the construction of projects of the non-production sphere, and as a result the "discrepancy" of the disproportions widened.

If the superfluous production assets are excluded from the cost of all our fixed assets and the missing non-production assets are added, we obtain the normative cost of the national economic system of places, that is, the very system which is called upon to satisfy the personal and social requirements of the population. Today it reaches 2.5 billion rubles. If we go in our calculations from the general to the particular, approximately 8,000 rubles are set free for the satisfaction of the needs of one person. Is that much or little? Let us try to investigate.

According to the norms in effect, the value of the fixed assets of non-production designation calculated per person in our country comes to about 4,000 rubles. The consumer qualities of housing and all other necessary life-support places, built with such funds, do not satisfy the growing needs of a present-day cultured person. For this, their doubling is required at a minimum. And to do this is not at all simple: It is necessary to change the correlation between the shares of capital investment for production and non-production construction.

Now about the production aspect of the problem. The majority of the training places in vocational-technical schools and at enterprises are equipped with machine

tools and machines whose age corresponds to the age of the equipment that is being written off. Having completed their training on this old junk, the young workers cannot at once begin to work on the latest equipment. They are forced to study and to master it all over again already in the factory. The opposite should be done: The apprentices should master equipment that has a future, equipment that arrives at the enterprise at the beginning of their independent work.

What is the way out of the situation? It is necessary, first of all, to form a scientifically-substantiated concept of the system of personal and social needs of the population and to foresee the whole "spectrum of values" which people need from their birth to advanced old age. Secondly, it is necessary to clearly substantiate a system of priorities: What is to receive urgent attention, and what can wait. Let us say, the highest priority will, obviously, be given to places for which waiting and standing in line is inadmissible—for example, some medical institutions. The next priority will go to places where waiting and standing in line is possible, but they must be minimum: These are housing, day nurseries, kindergartens, and schools. And, it goes without saying, the system of priorities must be reinforced by law, excluding variants that are advantageous to the bureaucrat, the bribe-taker, and the loafer, but disadvantageous to society.

All the former decisions in regard to the improvement of investment policy must be directed basically toward changing the system of economic indicators, stimuli, sanctions, and organizational structures. In return, the very principles of the management of economic activity were changed timidly and insufficiently.

A statewide system of information about the demand of vacant places of work, on the one hand, and about the supply of manpower, on the other, will have to be organized. In order to avoid unemployment, it will be necessary to create special cost accounting enterprises for those with whom labor collectives for reasons of one sort or another dissolve the labor contract. Some people talk about unemployment in order to scare us. To it, it is a long way: You see, our equipment in the plants is working basically in one to one and a half shifts, but it should be working in two to three shifts. How many people can be employed here alone!

The transfer of enterprises, associations, and ministries to cost accounting relations will induce sectoral specialists to save every unit of manpower, material, and financial resources. The support of dependants and superfluous places of work will become economically impossible.

I am convinced that an inevitable requirement should be formed to go over in planning from the capital investments and fixed assets to which no personal responsibility is attached and which are not coordinated with one another, as well as the number of workers to their interrelated and proportional combination on the basis of accepted standards.

A theoretically strict, practically simple, and maximally convenient solution of this problem can be obtained by utilizing, in the plan calculations, the balances of the labor funds and manpower resources. In this case, scientific-technical progress, about which serious economists are dreaming today with a touch of a certain romanticism, will indeed really become possible and necessary.

8970

## ORGANIZATION, PLANNING, MANAGEMENT

**Machine Tool Minister Discusses Industry Changes, Development**  
*18230014 Moscow NOVOYE V ZHIZNI, NAUKE, TEKHNIKE: SERIYA TEKHNIKA in Russian No 2, 1988 pp 3-27*

[Article by N. A. Panichev, minister of the machine tool and tool building industry: "Soviet Machine Tool Building on the Path of Change" in the booklet "The 12th Five-Year Plan—The Five-Year Plan of Machine Building"]

[Text] One of the key roles in carrying out the tasks of accelerating scientific and technical progress set by the 27th CPSU Congress belongs to machine tool building. Machine tool builders are called the technologists of machine building. Indeed, our ministry's enterprises are turning out industrial equipment which is used by practically all sectors of machine building, including equipment for machining and straining, metal cutting and measuring tools, woodworking machines and equipment, foundry equipment, industrial robots, hydraulic and pneumatic equipment, and so forth. We turn out all types of metalworking equipment known in the world, including unique products which not many foreign firms are capable of manufacturing.

Soviet machine tool building is one of the world leaders in output volume. At the same time, the sector must resolve a number of serious and complex problems in the 12th Five-Year Plan. To begin with, it must drastically change the composition of products turned out and raise their technical level and quality, that is, establish a technological base for intensive development of machine building and metalworking.

**Some History.** As with nearly all our industrial sectors, machine tool building had to begin with practically nothing in the first years of Soviet rule. A few enterprises were turning out primitive machine tools of foreign design. There were not enough funds to obtain imported equipment, and the problems of industrializing the young socialist state and increasing its defense capability required urgent solution.

Development of the Soviet economy was slowed down drastically by the war. Machine tool manufacturing plants, along with other enterprises in the machine building complex, were shifted (completely or partly) to output for defense. Many were evacuated from the European areas of the country to the Volga, the Urals, Siberia, and the Far East. Nevertheless, by the end of the 1970's Soviet machine tool building had reached an advanced position in the world in output volume. By that time, we were manufacturing every type of machine tool and forging and pressing equipment known in the world.

The rate of growth in output of the most modern products has also been high. For example, only 1,600 machine tools with numerical control were turned out in 1970, 5,500 were produced in 1975, and today dozens of machine tool plants are engaged in series production of a wide range of equipment of this type. More than 100 new models of machine tools with numerical control were put into production during the years of the 11th Five-Year Plan.

The figures for the increase in output of the most advanced types of equipment, such as machine tools of the "machining center" type, are even more impressive: they were produced in terms of units in 1970, but now thousands are turned out annually.

In the 1980-1985 period alone, the proportion of forging and pressing machinery equipped with automated facilities increased from 12 to 26 percent.

Over the past five-year plan, the production of casting machinery with numerical control was nearly doubled; production of automatic transfer lines increased by 2.5 times as much and production of manipulators for casting machines was quadrupled. Over the same period we began turning out seven times as many industrial robots. All the same, though, it is less than in the major capitalist countries—Japan and the United States.

The rate of growth in machine building and metalworking production in the 11th Five-Year Plan was double that in industry as a whole. Labor productivity in machine building increased even more rapidly. Naturally, the influence of machine tool building achievements on these indicators was crucial. We are now reducing the amount of metalworking equipment being manufactured by cutting back the production of manually controlled machine tools. At the same time, production of machine tools in the most advanced groups is being substantially increased.

**What Has to Be Done?** The 27th CPSU Congress decisions and the "Basic Directions for Economic and Social Development of the USSR for 1986-1990 and the Period up to the Year 2000" provide for machine building development to exceed that of industry as a whole. Machine tool manufacturing, along with instrument making, electrical engineering, and the electronics industry, has been named as one of the high-priority sectors whose development determines scientific and technical progress in the national economy to a large extent. In this connection, the sector's production growth rate which was set for the 12th Five-Year Plan is significantly higher than the average growth rate for the machine building complex.

First of all, the composition of output is being fundamentally changed. The output of machine tools with numerical control (ChPU), machine tools of the "machining center" type, automatic and semiautomatic

transfer lines, flexible manufacturing modules and systems, industrial robots and other advanced types of production is to be increased severalfold. By making use of this technology, we will establish a basis for production growth in machine building and metalworking without increasing the work force; moreover, it is capable of ensuring a high degree of renewability and product quality.

Increasing the technical level, quality and reliability of products turned out by our enterprises is a task that is just as important. By the end of 1990, we must ensure that equipment of world standard makes up 86 percent of total output volume. Our scientific research institutes have analyzed world trends in technology development and have worked out special-purpose sectorial programs—"Technical Level," "Quality," and "Reliability"—for this. The programs specify long-term production indicators for a protracted period of time and the ways to reach them. Based on the sectorial programs, specific measures have been developed at all enterprises to improve equipment and periods of time to carry them out have been established. This is precisely what is helping us to overcome the trend that has developed of "catching up" with the world leaders. In productivity and machining precision, the equipment being developed should be 1.5 to 2 times superior to the equipment being replaced, and it should be several times more reliable. The amount of materials and power it consumes will be substantially reduced.

An advanced technical level cannot be achieved through the efforts of machine tool builders alone. Intensive creative work is necessary in related sectors which provide the components and materials. Unfortunately, the "flywheel" is very slow to "gather momentum" here, especially with respect to systems for controlling equipment and instruments. We have outlined a number of joint measures with associated ministries which will enable us to correct the situation which now exists.

Organizational restructuring is under way in the sector, management methods are being improved, and enterprises are preparing to operate under the conditions of full cost accounting. We are doing away with inefficient organizations; capital is being redistributed to increase allocations for scientific research and design work, for renovation of our enterprises and their technical retooling, and to provide them with the most advanced equipment. Our employees are also being stirred to greater activity, and new forms of incentive are being provided for creative work by scientists, designers, and efficiency experts. The personnel training system is being improved.

#### AUTOMATION—THE BASIC DIRECTION OF TECHNICAL PRODUCTION

The measures to increase the productivity of equipment turned out and to accelerate the process of bringing machine building inventory up to date is aimed in the

final analysis at improving machine building efficiency. However, these measures alone are not enough to resolve the problem of increasing the efficiency of small-series and series machine building production, which accounts for up to 75 percent of machine building products. Research conducted in the FRG in the early 1980's showed that a universal milling machine operates productively there on the average for 6 percent of the calendar time; 34 percent of the time is "eaten up" by days off and holidays and 44 percent by nonwork shifts. Since such equipment is in operation chiefly on one shift, 2 percent of the time is consumed by "smoking breaks" and for operation with less than a full workload, and 12 percent of the time is used for setting up, adjusting, and replacing tools and parts. This calculation does not take into account the downtimes related to repair and maintenance, as well as the time that machine tools are not utilized because of poor production organization. It should be noted that the time spent on setting up and adjustment may exceed 12 percent under current conditions, when the range of workpieces is changed frequently.

The main directions for improving production efficiency are determined by the data cited. First of all, it is necessary to ensure that equipment is operated for the longest possible continuous period during a day. It is impossible to do this without additional manpower. And such an approach is not in conformity with the current social policy of our party and state, either. There is a second way—automation. Incidentally, it also leads to resolution of a socially important problem—reduction of up to 15 to 20 percent of the proportion of manual labor in production by the year 2000. Through introduction of automation facilities, the machine shift coefficient in industry should be 1.6 to 1.8 on the average by 1990.

Automation has always been viewed as one of the most important directions for increasing equipment productivity. Until recently, we have been automating basically those machines intended for mass and large-scale production. At the same time, only the manufacturer who is capable of introducing improvements rapidly, of ensuring flexibility in his production, in other words, can compete in the market. This is true for all sectors of industry, the machine building complex first of all.

Let us look at some types of metalworking equipment that are being turned out today.

The machine tool with numerical control (ChPU). Programmed machines made their appearance a long time ago. They include duplicating machine tools, for example. A template is also a program which the machine tool follows in performing an assigned sequence of operations. A template, as well as a program, has a number of drawbacks, however. First of all, this is an "inflexible" program. A new template must be manufactured for reprogramming. Secondly, the template determines only the movement of the tool in relation to the workpiece.

Machine tools with numerical control make it possible to easily and rapidly change the machining program and to control the entire complex of machinery and devices on the machine tool. At present, perforated tape, floppy disks, cassettes, and other types of memory units are being used to record operating programs in numerical control systems.

In numerical control systems, the control programs for at least the initial data are stored directly at the machine tool. A device for introducing the data into the system is positioned right here; the operator can edit by interacting with the control program and set it up when necessary, introducing specific values into the standard production cycle for machining stored in the memory of the numerical control system. It makes it possible for the system itself and the equipment being controlled to be diagnosed and the workpiece being machined to be measured.

Machine tools with numerical control for practically all forms of machining have been developed and are being produced at present: lathes, milling machines, drills, grinders, and so forth. Multipurpose machine tools which integrate a maximum number of operations hold a special place among them. As a rule, drilling, milling and boring are performed on multipurpose machine tools for machining stationary workpieces, as well as other operations with a rotatable tool. Such machine tools are called machining centers. Some of them are capable of turning and grinding. The basic objective is to obtain a finished piece on one machine tool. At the same time, it is desirable to dispense with readjustments. After all, every readjustment entails considerable loss of time, first of all, and loss of precision in the second place. For this reason, the developers of modern machining centers seek to give them the capability of machining a piece in an integrated manner, from four or five sides, from the outside and the inside.

We have multipurpose lathes (lathe machining centers) as well, basically designed for complete machining of workpieces of the "revolving body" type. As with universal lathes, the lathe machining centers perform operations on rotatable pieces. At the same time, the piece may be stopped at a position that has been preset exactly and machined with a rotating tool (drilling, milling). The standardization of multipurpose machine tools is being augmented at present with plano-milling machines and electro-erosion duplicating-broaching machines, and work is under way to further extend the standardization of such machine tools.

Flexible manufacturing modules (FMM), which have the highest degree of automation in both the basic and auxiliary processes, are being developed on the basis of machine tools with numerical control, including multipurpose machine tools. This equipment is designed for the manufacture of articles of unspecified designation in an automatic operation.

**A flexible manufacturing system resolves the problems.** Automation of labor, as one of the basic directions of scientific and technical progress, plays a crucial role in increasing the efficiency of all production activity and in accelerating the rate of growth of productive forces in a modern society. However, the contradictions, lack of knowledge or neglect which are inherent in the automation process, as well as any process of development, can lead to restraint of the process of increasing the efficiency of public production.

In machine building, the contradictions are primarily that accelerating the rate of technical progress, which was responsible for shortening the periods to update the range of products, for increasing its structural complexity, and for increasing the requirements for stability of the basic parameters of the machines turned out and their reliability, leads to an increase in the proportion of machine building output in small-series and series production and has an adverse effect on the labor-intensiveness of manufacturing.

At present about 75 percent of the value of world output comes from small-series and series production. Widespread introduction of machine tools with numerical control has made it possible to sharply increase labor productivity in these production facilities and has not substantially changed the correlation between the number of machine tools in operation and the number of workers attending to them. This situation is explained by the fact that the installation of new equipment has not changed production organization and accordingly, there have been significant losses of time associated with its technological preparation and readjustment of the equipment. A fundamentally new organization of production and technology may be achieved with the aid of flexible manufacturing systems (FMS).

The distinction between an FMS and bays and shops with industrial equipment operating independently, including equipment with numerical control, is that it includes an automated system to provide for its operation. The FMS is made up of a number of systems, such as: an automated transport and storage system, an automated tool provision system, an automated monitoring system, an automated waste disposal system, an automated system for the technological preparation of production, an automated control system, and an automated design system.

Essentially the entire production process is affected—from the design and planning of production and the loading of production equipment to the disposal of waste from production. At the same time, the operation of all equipment is controlled with the aid of a computer complex with an extensive network of appropriate devices.

I would like to dwell further on one characteristic of the FMS—it is a system of production equipment which has no inflexible coupling within itself. This not only does

not lessen the reliability of the equipment which makes up the complex, but it also enables the system to function even when one component or another malfunctions, which is impossible in traditional automatic transfer lines.

An integrated approach to all aspects of production provides for practically continuous operation of equipment with limited participation by attending personnel, and even without them during a third shift at night.

The emergence of new types of equipment and forms of organizing production or management cannot be a panacea for all ills, as some specialists believe. There should be objective conditions for introducing any type of equipment. Only then can we count on its efficiency.

Unfortunately, we have not developed sufficiently accurate methods for determining efficiency of an FMS to date. The separation between theory and practice is a factor. This situation has not only taken shape here. Research in the United States, the FRG, and a number of other countries has shown that along with highly profitable systems, there are also systems which have not reached the planned level of efficiency.

Increasing the level of production automation is not an end in itself; a close relationship is necessary between long-range plans for achieving the best level of automation with the plans for developing production and increasing its efficiency. Determination of the optimum level of automation and the opportunity to adjust it make it possible to reduce economic risk to a minimum when facilities for labor automation in general, and an FMS in particular, are introduced.

The development and introduction of an FMS is a complicated and costly process which requires high recovery of expenditures within periods that are economically justified. For this reason, such systems will be efficient only when the time and place for their introduction are selected correctly and enterprises are fully prepared for operation.

The view is widely held that an FMS is efficient only in small-series and series production. However, FMS's also may be utilized very successfully in certain cases for the large-scale manufacture of complex components. As an example, the readjustment of the Model PAL-101 automatic line for the stationary members of compressors produced by the Moscow "Stankoagregat" Plant or the "multicenter" machine tool of the Ivanovo Machine Tool Building Production Association.

Introduction of large FMS's resolves the strategic problems of production. For this reason, their development and manufacture should be preceded by thorough technical and economic research, during which the tasks to be performed by an enterprise over the entire period proposed for FMS operation are defined.

**What equipment should there be for an FMS?** Let us stipulate that this refers only to metal-cutting equipment, but the FMS is a broad concept, after all.

Flexible manufacturing modules (FMM) are the basic production equipment being used in the FMS. One of the most important tasks facing the developers of FMM's is possibly providing them with a large number of functions. Technical and economic expediency have to be taken into account when technological capabilities are extended, of course. FMM's should not become very complicated (this can have an adverse effect on reliability) or too expensive as the result of improvement.

Automatic replacement of tools and workpieces is one of the indispensable functions of an FMM. A tool is installed in a magazine, as a rule, for machining stationary components in an FMM. Automatic replenishment of magazines during operation and their replacement are being provided for in modern FMM's.

In the FMM's developed on the basis of lathes and multipurpose lathes, a tool is mounted in turret heads similar to those being used in turret lathes, but more complex. In particular, provision has been made to utilize a rotatable tool—drills, milling cutters, and so forth—in the tool heads of multipurpose lathes.

In order to replace workpieces in the FMM's used for drilling, milling and boring, devices are installed to automatically replace satellite tables (pallets [palety]). If an FMM is designed for operation as part of an FMS, a two-place arrangement is adequate, as a rule. When one of the tables is in operation, the workpiece at the second work position is changed. When the FMM is operating independently, multiple satellite tables are utilized in order to ensure uninterrupted operation without operator participation for an entire shift.

Workpieces for lathe and multipurpose lathe FMM's may be fed by shop transport or mounted on a cycled conveyor table positioned near the machine tool. Workpieces are replaced by a robot.

The equipment built into the FMS should be provided with devices for self-testing (diagnostics) and monitoring the machining of a component. At the same time, such monitoring should be active so that its results may be utilized to adjust the machine tool, and control should be self-adjusting, that is, to act on the machining operation through feedback with the numerical control system.

Removal of cuttings is a serious problem in developing an FMM. After all, the equipment must operate without a person's intervention for a long period of time. For this reason, lubricant-coolant liquid is applied liberally to the cutting area under high pressure in modern automated equipment. As a result of this, the workpiece is washed well and cuttings fall onto apron or worm conveyors

which take them away. Liberal application of lubricant-coolant under pressure has predetermined the necessity of sealing off the work area.

Designers are following different paths in developing metalworking equipment for the FMS. Existing machine tools with numerical control are being provided with the necessary auxiliary functions. They are being equipped with programmed control capable of establishing contact with the computer which monitors the operation of the FMS, the tool magazines, and the devices for automatic replacement of the satellite tables.

The effort to reduce expenditures on scientific research and design operations does not always lead to the necessary end result. Experience shows that special equipment needs to be developed for flexible automated production facilities. To begin with, it should be much more reliable than multipurpose equipment, since it will have to operate in automatic complexes where downtimes lead to huge economic losses. In addition, FMM's will be operated much more intensively than multipurpose machine tools. The shift coefficient of equipment operating as part of an FMS should substantially exceed the average indicators.

A multipurpose machine tool taken as the basis for an FMM does not always work well with a robot and the machinery for replacing workpieces. It is difficult to automate the removal of cuttings and seal off the work area.

Two paths are being followed in the development of flexible manufacturing modules at the Leningrad Machine Tool Building Production Association imeni Ya. M. Sverdlov, which specializes in equipment for machining large base members. The first path is by adapting the "traditional" multipurpose machine tool for operation as part of an FMS. Thus, the LR395PMF4M module was developed. Prospective models of the association include the LR400PMF4M and LR500PMF4M modules, which were designed (by the second path) by taking into account all the demands made of equipment which will have to function in flexible manufacturing systems. The modules' construction itself is "flexible," inasmuch as it is based on the block-module principle. Tool magazines, stands with additional attachments, manipulators for replacing tools, and so forth are arranged separately from the machine tool. The customer may select the module's configuration in accordance with his production requirements. Additional accessories provided with the module make it possible to machine a workpiece from five sides, inside and outside.

The Ivanovo Machine Tool Building Production Association is our country's largest manufacturer of metalworking equipment for flexible manufacturing systems. Multipurpose drilling-milling-boring machine tools and flexible manufacturing modules with tables measuring

200 by 200, 320 by 320, 500 by 500 and 800 by 800 millimeters are being turned out there. Larger equipment is being manufactured as well.

The Ivanovo Machine Tool Building Association's products include machines of various industrial capabilities. For example, the "IR800PMF4 Block Center" is flexible as a machining center and productive as an automatic transfer line. In addition to a spindle which operates only once with one tool, it is equipped with multiple-spindle boxes which are exchanged automatically; each one of them machines several holes simultaneously. Monitoring devices which check work quality and transmit data to the numerical control unit have been installed in the magazines along with the operating tools.

"Block-centers" are the foundation of the flexible automated shop at a plant of the ZIL [Moscow Motor Vehicle Plant imeni I. A. Likhachev] Association, where transmissions and engines for a new diesel truck are being manufactured.

Production of a new generation of equipment with enhanced suitability for operation "without people" has already been begun at Ivanovo. Self-adjusting inspection of machining operations has been introduced, removal of cuttings is efficient, and the work area has been sealed off. Variable-capacity chain tool magazines which can automatically replenish in the process of operation are utilized instead of the traditional drum magazines. The devices for exchanging satellite tables have been improved. The new generation of equipment includes the precision "IR200AMF4 Minicenter," FMM's based on the IS500 and IS800 centers, and the IRT180PMF4 multipurpose lathe.

Many of our plants and associations, apart from the enterprises mentioned, are turning out equipment for flexible automated production facilities. The lathe machining centers and FMM's of the Moscow "Machine Tool Building Plant imeni Sergo Ordzhonikidze" Association and the Ryazan Machine Tool Building Production Association, the precision machining centers and FMM's of the Odessa Precision Machine Tool Plant imeni 25th CPSU Congress, and the FMM's of the Gomel Machine Tool Building Plant imeni S. I. Kirov show promise.

The Ulyanovsk, Kramatorsk, and Kolomna Machine Tool Building Production Associations are manufacturers of heavy equipment for "flexible" technological processes. The first one specializes in machine tools for machining stationary base components, the second manufactures heavy lathes, and the third makes vertical boring and turning lathes.

Over the next few years Soviet machine tool building will have to substantially increase output of equipment for flexible automated production facilities. A good beginning was made in the first year of the 12th Five-Year Plan. Production of machine tools and presses equipped

with numerical control systems was increased by 1.3 times as much, machining centers by 1.5 times as much, flexible manufacturing modules by 2.7 times as much, and industrial robots by 1.9 times as much.

**Automation of mass production.** The sector's enterprises and organizations have considerable experience in developing and producing automatic transfer lines for manufacturing the most diverse components under series and large-scale series production conditions. Our equipment is operating successfully at many enterprises in the automotive industry, agricultural machine building, and other sectors of the national economy. Expanding the output of automated equipment for small-series and series production facilities by no means signifies a cut-back in automation for other purposes. On the contrary, the production of automatic and semiautomatic lines for machine building and metalworking will be nearly doubled by the end of the 12th Five-Year Plan, and electronic and microprocessor technology and industrial robots will be utilized in them more and more extensively.

We have to perform one more complex and important task in this same five-year plan—organize series production of the most productive equipment for manufacturing items which are calculated in hundreds of thousands and millions of units. This refers to automatic rotary and rotary-conveyer lines. Without going into technical details, I will note that one of the distinguishing features of these lines is that the operating processes and transport of an item are concurrent, which reduces the machining cycle substantially.

The sector's enterprises will specialize in making automatic rotary and rotary-conveyer lines for several technological process stages: the manufacture of castings of nonferrous and ferrous metals by special casting methods; the machining of metals by pressure; the reprocessing of plastic and metal powders; and the mechanical machining and assembly of components.

Several scientific research institutes and design bureaus and skilled production associations and enterprises have been enlisted in the work and provision has been made for the development of additional production capacities. Together with specific users of the lines, the prospects for different technical orientations and forms of machining are being determined more precisely.

A number of enterprises have already begun turning out lines such as this. Thus, the Moldavian "Tochlitmash" Production Association is manufacturing a batch of lines for receiving castings, as well as investment molds, in 1987. The Odessa "Pressmash" production Association is putting a range of standard automatic rotary-conveyer lines for the manufacture of individual plastic items in production. One of the models is already being produced, and two more prototypes of large-dimension equipment of this type were delivered in 1987.

A feature of work to develop and master the production of automatic rotary and rotary-conveyer lines is that the activity of all scientific research organizations and enterprises of our ministry, as well as of other machine building ministries, is being carried out within the framework of the "Rotor" Intersectorial Scientific Research Complex (MNTK) on the basis of a unified five-year plan for conducting research, development, and testing operations. A program to develop lines and organizations for their cooperative production by interested enterprises has also been prepared within the framework of the "Rotor" MNTK, which will speed up assimilation of this advanced type of equipment through the use of single technical solutions and will ensure the high technical level of developments.

**Requirements for machining precision are being increased.** The efficiency and quality of future products depend to a large extent on how precisely components have been machined and how high the grade of surface roughness is. Important parameters of equipment such as the extent of work economized and power consumption are determined by these characteristics, in particular.

Requirements for increased precision are also dictated by the miniaturization of many components, computer equipment in particular. There is ever-increasing demand for reliable hydraulic and pneumatic apparatus, and precision equipment is indispensable in its manufacture. The requirements for equipment in the most advanced technological processes, based on laser use, for example, are especially high. Extremely high precision is needed as well in the manufacture of medical instruments used in heart operations, organ transplants, and eye microsurgery.

Meeting these requirements is the task of precision machine tool making. The basic requirement for precision equipment is high reliability and retention of the original precision features for an extended period of time. This may be achieved with the aid of new design solutions, primarily electronic advances, stronger construction, shortening the kinematic chains, more refined materials, and ruggedization. Lasers are being used to harden the guiding movements of tools. Synthetic materials which reduce friction and improve the smoothness of position changes are being utilized in machinery. Hydrostatic and air bearings are being utilized in the drives of rotary machinery. We are turning our attention more and more often to systems for in-process inspection of the dimensions of components being machined.

Precision equipment makes up more than half of the standardized metal-cutting machine tools turned out in the Soviet Union. Even an enumeration of the models alone would take up many pages.

One of the ways of improving precision grinding equipment is by extending its technical capabilities, for which machine tools are furnished with additional accessories.

Thus, the surface grinders of the Orsha "Krasnyy Borets" Plant are equipped with devices for correcting the contour of a circular item. Shaped grinding can be done on them thanks to this. The threading and grinding equipment of the Moscow Coordinated Boring Machine Tools Plant is capable of operating with single- and multiple-threaded circular items and performing in-feed grinding.

The Moscow MSZ Grinding Machine Plant is one of few enterprises in the world which turns out equipment for grinding gear wheels—almost the most complex metalworking machine tools.

Superfinishing, an operation which makes it possible to greatly improve the quality of the most important components, such as the races for high-precision and high-revolution bearings, is being utilized more and more widely in industry. Automatic machines for superfinishing bearing races are being turned out by the Leningrad Precision Machine Tool Production Association.

Soviet tool enterprises are manufacturing measuring devices in thousands of standard sizes for checking machining accuracy. They include simple calipers and the most complex coordinated measuring machines, such as the VYe155, manufactured by the Vilnius branch of the Experimental Scientific Research Institute of Metal-Cutting Machine Tools (ENIMS). It performs a comprehensive inspection of complex stationary base members measuring 1,000 by 630 by 400 millimeters with a measurement precision of 0.5 micrometers.

Profilographs and profilometers used for measuring roughness and waviness of a surface make it possible to record unevenness within a range of up to 0.02 micrometers.

**Forging and pressing equipment: economy of material and high productivity.** High priority is being given to development of forging and pressing equipment production in the 12th Five-Year Plan mainly because replacing cutting with deformation makes it possible to substantially reduce metal consumption; first of all, deformation is significantly more productive, and secondly, when a material is machined by pressure during the stage of manufacturing a component, it may be given the necessary properties which directly change its structure.

Forging and pressing machines, automated complexes, and automatic lines for practically all types of metal machining are being turned out at enterprises in the Soviet Union: for sheet and bar rolled stock, sheet metal stamping, for bending and straightening, cold and hot die forging, smith forging, and so forth.

One of the basic directions in developing new forging and pressing equipment at present is increasing the upper limit of the forces used. This applies primarily to automatic machines. The forces of automatic hot stamping machines will increase up to 25,000 kilonewtons,

automatic multiple-position sheet stamping machines will increase up to 40,000 kilonewtons, cold stamping machines will increase up to 5,000 kilonewtons, and punching machines for finished punching will increase up to 10,000 kilonewtons. Hydraulic sheet-bending presses with a force of up to 6,300 kilonewtons and forging complexes with numerical control with a force of up to 60,000 kilonewtons will be turned out.

The complexity of readjusting forging and pressing equipment has always been considered its "weak point." In the 12th Five-Year Plan we will have to substantially increase output of flexible automated forging and pressing modules and systems and equipment with numerical control provided with automated loading and unloading facilities, including robotized complexes. Over the 1986-1990 period the proportion of machines provided with automation in the overall output of forging and pressing equipment will be doubled. The proportion of equipment with numerical control, robotized complexes and flexible automated modules is increasing by a factor of 2 to 2.5. Such an increase in the production of "flexible" equipment will make it possible to resolve an important problem in forging and stamping production: obtaining more than two-thirds of the output under conditions in which there is a mobile replacement of items.

The AKP1035.F2.01 automated complex for smith forging of shafts (including variable-diameter shafts), flanges, rings, small cubes, and other items is one of the new developments of Soviet press builders. The complex includes a stationary manipulator and a wheeled fitting machine with a load capacity of 630 kilograms. The complex is readjusted automatically when it shifts to the manufacture of a new item. No more than a minute is required for the automatic tool replacement.

The OTsKO126F4 coordinated turret machining center was developed on the basis of the KO126 press. The turret head contains 28 sets of tools both for deformation (punching and cutting out holes of different shape) and for machining them by cutting (milling, threading). The center's numerical control system provides for contact with the computer which controls the flexible automated section, the line and the shop. On the basis of the center, specialists of the Scientific Production Association of Forging and Pressing Equipment and Flexible Manufacturing Systems for Machining Metals by Pressure (the NPO "ENIKmash" in the city of Voronezh) have designed a flexible production section for manufacturing the casings, chassis and panels of electronic and radio equipment. Aside from the machining center, the section contains shears, a metal bending machine, automated facilities for handling between operations, storage, loading, unloading and transporting components, and an automated control system. The layout of the section provides for independent movement of workpieces by several routes at the same time.

Shafts are one of the items of highest volume in machine building. In order to shape the workpieces of such components with minimum allowances for subsequent

machining, a new type of equipment—radial compression (radial forging) machines—is being developed and produced. An item is shaped in them by radial forces acting on the external contour of the workpiece and on internal surfaces on a mandrel. Radial reduction saves 1.5 to 2 times as much metal and more than triples productivity, compared with cutting. Items with variable profiles may be obtained. The fact that the surface of components is reinforced during machining on radial compression machines is a positive factor. Machines with a force of up to 2,500 kilonewtons are being turned out at present. Machines such as this with a force of up to 6,300 kilonewtons have been developed.

Programs for further development of foundry machine building and the production of woodworking equipment have also been specified for the 12th Five-Year Plan. A number of complex problems related to overcoming the lag in the technical level of production as well as output volumes have to be resolved with these types of equipment. Principal attention is being devoted to the development and production of automatic lines and complexes and equipment of high productivity, reliability and quality.

**The end result depends on the tools.** No matter how reliable and accurate a machine tool is, the quality of the product manufactured with it depends on the tools. Intensification of machine building production, based chiefly on extensive use of machine tools with numerical control, has involved substantial changes in the provision of tools. High durability is required of modern tools. They should efficiently machine any materials with varying hardness, ductility and other mechanical properties. The design of tools is determined by the requirements for their use under automatic replacement conditions.

The term "advanced tool" is in wide use. This concept applies to items made of synthetic diamonds, metal ceramics, mineral ceramics, and other superhard materials, as well as to tools made of traditional materials with reinforced operating surfaces. Of course, the "advanced nature" of a tool depends on its capabilities, not on the materials with which it is made.

The diamond is the hardest material existing in nature. The requirements of modern industry for diamond tools greatly exceed the opportunities for economically expedient use of natural diamonds. This has compelled us to establish a subsector for the production of synthetic diamonds and tools made with them. Aside from purely economic considerations, the fact that synthetic diamonds can be given the necessary properties during their manufacture attests to the advantage of developing them.

The Institute of Superhard Materials of the UkrSSR Academy of Sciences and the All-Union Scientific Research and Industrial Designing Institute of Natural Diamonds and Tools (in Moscow), which is part of the

Minstankoprom [Ministry of the Machine Tool and Tool Building Industry] structure, are now engaged in the development of synthetic diamonds and their production technology and in designing tools made with them. More than 20 types of synthetic diamonds and composite materials based on them have been developed by these institutions.

Cutting tools such as those used for machining items made of nonferrous metals and special alloys, ceramics and other nonmetallic materials are reinforced with synthetic diamonds. Compared with carbide-tipped cutting tools, they are 1.3 to 1.4 times more efficient and 60 to 80 times more durable. Drill bits with diamond composite materials drill three to seven times faster than carbide-tipped bits.

Soviet industry is turning out abrasive tools of several thousand standard types made with synthetic diamonds. Diamond grinding wheels for tools made of various superhard materials are being used most extensively. These diamond tools are noted for their high efficiency and durability. For example, a grinding wheel for superhard tools removes up to a thousand cubic millimeters of material per minute.

We began producing more tools made of superhard materials (STM) in recent years. The All-Union Scientific Research Institute of Abrasives and Grinding (in Leningrad) became a pioneer in developing tools made of cubic boron nitride, one of the forms of superhard materials. Here they also gave the name "elbor" to one of the most widely used superhard materials. Work is being continued in Leningrad to improve tools made with elbor: wheels, whetstones, abrasive cloth, and so forth.

The All-Union Institute of Abrasives and Grinding, jointly with specialists of the Institute of Superhard Materials of the UkrSSR Academy of Sciences, has developed the technology for manufacturing elbor wheels with a high content of monocrystals on a metallic bond [svyazka]. The technology provides for application of powder metallurgy methods. A working surface that is durable and almost nonporous is obtained as a result. These wheels have been utilized in various ways: sharpening, including full-depth sharpening; shaped grinding; thread grinding; grinding with electro-erosion, and other types of machining. Teeth with 10,000 milling cutters may be machined with one such wheel.

Grinding tools made with elbor operate with less cutting force and at lower temperatures than tools made with other materials. The coefficient of their cutting efficiency is practically unchanged in the grinding process. Other things being equal, the input of this tool is three to five times less than the input of a diamond tool and nearly 100 times less than that of the traditional abrasive tool in finish grinding operations on very hard and high-alloy steels. Machining precision is also higher. The structure of the surface layer of material machined with an elbor tool is essentially unchanged.

Not only grinding tools, but cutting tools as well, are being developed with superhard materials based on cubic boron nitride. The abrasion resistance and cutting properties of elbor cutting tools are significantly greater than metal-ceramic tools, and the advantages are substantially more apparent where materials of increased hardness are machined. Thus, in turning very hard high-speed steel with cutting tools with hard alloy and mineral ceramic blades, 0.5 to 1 millimeter is worn away after 3 to 8 minutes of cutting. Under the same conditions, just 0.4 millimeters have been worn away after 140 to 160 minutes when the elbor cutting tool is used.

Cutting machining with cutting tools and milling machines made of superhard materials based on cubic boron nitride often takes the place of grinding. The advantages are obvious: rough and finished machining may be performed with one machine tool without rearranging the workpiece. The combination of extreme hardness and heat resistance in cutting tools made of composites makes it possible to use them for high-speed machining.

More than 50 years ago, industrial production of metal-ceramic alloys based on wolfram and cobalt carbide, which were given the firm name "pobedit," was organized in our country for the manufacture of cutting tools. Their use in machining metals produced a true revolution in machine building technology. Cutting speeds were three to five times faster than in machining with high-speed steels, and it became possible to machine materials which had not been worked on before.

Taking requirements for automated production into account, we began manufacturing cutting tools (cutters, milling machines, and so forth) with hard-alloy blades that are not resharpened which are mechanically attached to a steel holder. The nonresharpenable blades are designed for repeated use (up to 60 times) of the holders. Production of such a tool is being sharply increased in the 12th Five-Year Plan.

Among the ruggedizing technologies being used to increase the durability of tools made of traditional materials, the application of abrasion-resistant coatings on the cutting surface is being utilized most extensively. One of the methods of hardening is cathode-ion bombardment of a tool surface on units of the "Bulat" type, a familiar method in our country and abroad. A metalworking tool with abrasion-resistant coatings is two to five times more durable than the usual ones. Production of tools with abrasion-resistant coatings will be increased severalfold over the years of the 12th Five-Year Plan.

In addition to the use of new materials for cutting tools, work is under way to improve their designs. Among the tools of new design are prefabricated [sbornyye] drills, developed by the All-Union Scientific Research Institute of Tools. Compared with twist drills, the new tools are

three to five times more efficient and guarantee high precision in finished machining. Reaming and expansion of holes are unnecessary after drilling with the prefabricated tool.

Production of a unique tool which combines the functions of a drill and a milling cutter has been begun at the Vilnius plant. In the first stage of the operation, the drill-milling cutter cuts into the material with all its working area, and then begins milling, shifting in accordance with a template or a program.

These are only individual examples. Output is being brought up to date at practically all tool plants. The production of metal-cutting and auxiliary tools for machine tools with numerical control and automatic lines is being increased at a rapid pace.

**The international ties of machine tool builders.** The problems facing the sector will be resolved by utilizing the scientific and technical and production potential of foreign countries, primarily the socialist countries.

The basis for collaboration with socialist countries is the Comprehensive Program for Scientific and Technical Progress of CEMA Member Countries up to the Year 2000. The program provides for the entire range of operations, beginning with scientific research and ending with the production of equipment developed jointly. The program is oriented primarily toward the end result—establishing conditions to accelerate the process of putting promising competitive equipment into production. Provision is being made not only to develop scientific and technical and production ties, but to search for and carry out new organizational forms of collaboration—the establishment of joint industrial associations and enterprises and scientific and technical organizations and the extension of direct cooperative relations. Our enterprises and organizations already have definite experience of value here.

In 1986, two scientific production associations established jointly with the People's Republic of Bulgaria began operating: the Ivanovo SPO [presumably, joint production association] and the ZMM GKhO [Bulgarian state economic association] for the development and production of machining centers, flexible manufacturing modules and systems for machining stationary base members, and the "Krasnyy Proletariy" SPO and the "Beroye" Combine, for the development of machine tools with numerical control and flexible manufacturing modules for lathe machining and industrial robots. The associations are operating in accordance with common plans, and joint design collectives have been organized in them. Within the framework of joint operation with the Bulgarian machine tool builders, the Ivanovo SPO and the Moscow "Krasnyy Proletariy" SPO have been able to significantly shorten the periods of time for developing new advanced types of equipment and to increase the output of machining centers, flexible modules and industrial robots through cooperative production.

Practically all CEMA member countries are taking part in the work of the "Interrobot" Scientific Production Association, which was organized multilaterally. The "Interrobot" MNPO [Multilateral Scientific Production Association] has been called upon to coordinate work by CEMA countries in the field of robotics and the activity of the "Robot" Intersectorial Scientific and Technical Complex established in the USSR. Under the program of scientific research and experimental design work prepared by the "Interrobot" MNPO up to 1990, provision has been made to develop 30 prospective standardized designs of industrial robots for servicing metal-cutting machine tools, forging and pressing and casting equipment, and for automating assembly and control and measuring operations, welding, painting, and so forth, as well as to develop a number of standards and to standardize and classify robotics equipment, that is, to establish the conditions for a unified technical policy to be successful in the field of robotics.

The Soviet-Czechoslovak "Robot" International Scientific and Technical Association, which includes nine scientific research organizations and enterprises from the two countries, is in operation at present. The activity of the "Robot" MNTO [International Scientific and Technical Association] is closely coordinated with work to automate production both in the USSR and other CEMA countries. In addition to the development of new robotics equipment, operations have been planned to automate a number of enterprises in the USSR and the CSSR.

Work is being carried out purposefully to establish new joint associations with Bulgaria, the CSSR, Poland and other countries. It is planned to sign about 50 agreements for direct scientific and technical and production collaboration between the sector's enterprises and organizations and related enterprises in fraternal countries.

Collaboration with firms in capitalist countries is acquiring new substance. A number of our enterprises—the Orsha "Krasnyy Borets" Plant, the Vilnius "Kommunar" Machine Tool Plant, the Odessa Milling Machine Plant imeni S. M. Kirov, the Moscow Machine Tool Building Plant imeni Sergo Ordzhonikidze, and others have many years of experience in cooperation with firms in the FRG, Italy, Sweden and Japan. We are now beginning to establish joint enterprises with the leading firms in capitalist countries.

The foreign economic activity of ministries is being restructured at present in conformity with party and government decisions. Inclusion of the "Stankoimport" foreign trade association as part of the ministry will enable us to link in a single chain the interests of producers, consumers and trade organizations, which will promote improvement in the technical level of output and its quality, and consequently, its competitiveness. The establishment of foreign trade firms, which will have the right to go into the world market independently, for eight of our production associations pursues the same objective.

Soviet machine tool building has entered the stage of fundamental restructuring of its activity. Machine tool building has been criticized time and again, at the 27th CPSU Congress and subsequent plenums of the party's central committee, in the USSR Council of Ministers, and in statements in the press for the low technical level of output, the unsatisfactory quality of its manufacturing, the sector's inadequate modernization, and inefficient production organization. Realizing the key role of machine tool building in transforming the entire economy of the country, the sector's workers are interpreting constructive criticism correctly, drawing the correct conclusions from it, and are making the maximum effort to ensure that most of the sector's output is able to compete with the best foreign products in the shortest possible time.

Machine tool builders understand the complexity and importance of the tasks ahead of them and they have aimed at successful completion of the plans for the 12th Five-Year Plan established by the 27th CPSU Congress decisions.

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8936

**Construction, Investment Policies' Effect on  
Machinebuilding Viewed**  
*18230011 Moscow PLANOVYYE KHOZYAYSTVO in  
Russian No 2, Feb 88 pp 68-74*

[Article by V. Pchelkin, M. Ivanov, and L. Merzon: "Problems of the Modernization of Fixed Production Capital"]

[Text] One of the most important factors in a substantial increase in the rates of economic and social development is the improvement of the utilization of the production potential, which has reached enormous dimensions in the USSR. In a short time, the kind of system for the reproduction of fixed production capital will have to be created that would secure the maintenance of a high level of the production apparatus of the country in accordance with the requirements of scientific-technical progress and its constant modernization.<sup>1</sup>

In present-day conditions, not only the expansion, but also the simple reproduction of fixed production capital on a new technical basis acquires paramount significance, the increase of the rate of its turnover to a level guaranteeing their removal and replacement before the onset of obsolescence. In this, in our view, lies one of the main prerequisites for the transition to the intensive path of economic development. Intensification presupposes a radical change of the system of the reproduction of assets that has taken shape, and above all in the machinebuilding sectors. The data about their introduction and removal in industry, which are presented in the table, reflect the unfavorable trends that have taken place in the last 15 years.

In accordance with the directives of the 27th CPSU Congress, the reproduction structure of capital investments is changing in a fundamental way: There is a sharp increase in their share for modernization, thanks to which there should be a speed-up in the equipment of the sectors of the national economy with new, highly-efficient equipment making possible a substantial increase in labor productivity. The 43 percent increase in the output of the machinebuilding complex planned for the 12th Five-Year Plan should be obtained mainly as the result of reconstruction and technical reequipment of existing production. More than half of the increase in capital investments is directed toward these purposes.

\*)As a matter for discussion.

**Table I. Introduction and Removal of Fixed Capital in Industry and Machinebuilding, 1975-1985 (in Percent of the Total Cost of Capital)**

	1975	1980	1985
<b>Introduction of Fixed Capital:</b>			
For industry as a whole	40	37	33
In the machinebuilding complex	43	41	35
<b>Removal of Capital:</b>			
For industry as a whole	11	8	8
In the machinebuilding complex	8	7	7

The recognition of the priority character of the task of the renovation of existing production and the corresponding reorientation of the investment policy are called forth not only by the peculiarities of the current stage of economic development, but also by the objective necessity of a change in the system of the reproduction of fixed production capital in the conditions of accelerating scientific-technical progress. At present the technical renovation of the production apparatus takes place for the most part through new construction. As a result, the average length of service of fixed capital in existing production has reached 35-37 years. This inevitably led to (and has resulted in) the lagging of whole sectors behind the requirements of scientific-technical progress. Hence the demand for the mass modernization of existing capacities.

At the same time, the priority orientation toward intensive factors of development do not by any means presuppose the cessation of new construction. Together with modernization, it constitutes two independent, although interrelated directions of investment policy. In so doing, it should be kept in mind that, with the exhaustion of the sources of extensive development, the modernization of existing enterprises becomes not only a factor of the technical renovation of production, but a chief prerequisite for the release of a part of manpower and the economy of raw material and energy resources that are necessary for the personnel and resource supply of the newly constructed enterprises.

During the 12th Five-Year Plan, the total volume of capital investments in the national economy is growing by 18-22 percent, and the share of funds allotted for the modernization of production in them—by up to 50 percent (as against 38 percent in 1985). In all, more than 200 billion rubles will be directed toward the reconstruction and technical reequipment of production (this is more than for the previous 10 years).

However, the increase of capital investments alone is clearly inadequate for the acceleration of the process of renovation. An analysis of the state of affairs in the construction of 500 large projects (a total estimated cost of 20.4 billion rubles), introduced in the preceding 12 years, indicates that almost the entire growth of capital investments was directed toward the creation of construction starts. Moreover, the dissipation of resources was not stopped at all. The magnitude of losses from their "freezing" in incomplete construction came to about 6 billion rubles, or more than 30 percent of the total volume of capital expenditures directed toward the creation of these projects.

Consequently, along with the growth of capital investments, what is needed is a detailed, scientifically-substantiated study of the sectoral and territorial plans for capital construction with the aim of the adoption of cardinal measures for their comprehensive balance. Otherwise the greater part of the increase in investment resources will not produce the expected result in the form of the projected increases of production and advances in the technical equipment of production.

The "modernization" orientation of investment policy itself to a certain degree appears as a factor in increasing the balance of the capital construction plans since the increase in the share of reconstruction and technical reequipment should guarantee a relative economy of capital investments and the acceleration of their recovery. But these "internal" possibilities are inadequate; there is a need for purposeful efforts to secure a continuous balance of the capital construction plans and contract work as the basis for solving the key problem of capital construction—the reduction of the construction periods, including reconstruction as well, to one half at a minimum.

In the technical reequipment of the national economy, an important role belongs to the industries of the machinebuilding and construction complexes, whose fixed capital is also in need of modernization. At the present time, capital construction has turned into the weakest link and chief obstacle in the realization of the reequipment of the machinebuilding sectors. Because of the shortcomings characteristic of it, it is not ready to realize the existing scientific-technical potential. Year after year, both the planned and the actual periods of the completion of construction are moved. *As a result of the continuing dissipation of capital investments and the increase of the actual periods of construction above the standard periods, the priority project program of the*

*machinebuilding industries for the 12th Five-Year Plan is in a state of serious disruption.* The calculations that have been conducted proceeding from the level of the fulfillment of plan tasks for 1986 indicate that, in terms of the above-limit construction projects of the USSR Ministry of the Automotive Industry and the USSR Ministry of Tractor and Agricultural Machine Building alone, the national economy will fail to receive production valued at more than 8 billion rubles (each), the USSR Ministry of the Electrical Equipment Industry and the USSR Ministry of Heavy, Power and Transport Machine Building—more than 3 billion rubles, and the USSR Ministry of the Machine Tool and Tool Building Industry and the USSR Ministry of Construction, Road and Municipal Machine Building—more than 1.5 billion rubles. If we take into consideration the fact that the material-technical equipment of the scientific, pilot-experimental and design base of machine building is being strengthened, the skills of cadres are increasing, and the selection of scientific subjects is improving, we can conclude that in the near future the tasks facing capital construction will become significantly more complicated. On the one hand, it is necessary to liquidate the long overdue construction projects that have accumulated in the machinebuilding industries, and, on the other—more acutely will the question arise about increasing the rates of mastering the results of scientific-technical progress, whose underutilization already in the 12th Five-Year Plan will turn the production capacities introduced in recent years into obsolete ones. *The poor provision of the priority construction program with financial resources and the capacities of the construction and installation organizations leads to the fact that commissioning of many machinebuilding projects at full projected capacity will be carried not only beyond the limits of the current five-year plan, but even beyond the year 2000.* As a result, the national economic losses are coming not only in the form of the non-fulfillment of the plan tasks in the machinebuilding industries themselves, but also in industries associated and interrelated with them. In these conditions, it is necessary to substantially increase the effectiveness of the utilization of the funds being allotted for the development of the machinebuilding complex, and to optimize its structure.

It can be asserted with full justification that the strategic task of the modernization of the production apparatus of the country will be solved only provided there is a qualitative change in the approach to the utilization of the capital investments allotted for these purposes, a real “tuning” of the entire planning and organizational work to the obtaining of final results of capital construction. In the conditions of the intensification of cost accounting and the transition to self-financing, the policy of modernization becomes an organic and integral part of the process of the radical restructuring of the economic mechanism and investment policy. The unfounded limitations of the rights of the primary production links in this sphere have been eliminated by the Law on the State Enterprise (Association). There has been an expansion of the possibilities of the attraction of financial resources

directed toward the modernization of production. The central and republic departments have been charged with the obligation to make immediate provision for the needs of material-technical resources for the work in regard to the technical reequipment and reconstruction of production that are being realized at the expense of the fund for the development of production and capital investments. The managers of associations and enterprises have received the right to independently confirm the planning estimates and title lists for the modernized construction.

The transition to new conditions of planning, material-technical supply, and the financing of modernization work creates important prerequisites for the technical renovation of production with fewer expenditures and in much more compressed periods compared to new construction. Important is also the fact that the associations and enterprises receive the opportunity of taking up in earnest the elimination of bottlenecks in production, the development of an ancillary farm, testing and experimental bases, etc. The direction of investment resources for these ends and their rapid assimilation, without a doubt, will yield a great national economic effect, which will be reflected in the reduction of the current production expenditures, the growth of labor productivity, accelerated renovation, and the increase of the quality of the production being turned out.

However, we should realistically assess the possibilities and probable consequences of such handing over of significant planning and management powers in connection with the utilization of the resources of capital investments at the level of the primary economic link. It seems that the possibilities opening up in connection with the expansion of the economic independence of associations and enterprises (including in the sphere of capital construction) and the increase of capital investments being directed toward the reconstruction and technical reequipment of existing production cannot be realized automatically by themselves. Their realization requires the thorough restructuring of all links of the system of management of capital construction, the organization of construction production and economic relations. The conduct of a policy of the broad-scale modernization of production is possible only provided there is a general straightening out of capital construction planning, the securing of balance in the investment sphere, and the “removal” of the numerous problems because of which reconstruction and technical reequipment have become disadvantageous for contract organizations and create difficulties with the customers.

The chief directions of such a restructuring is the securing of the balance of the capital construction plan and the cessation of the dissipation of capital investments and construction capacities at numerous construction projects. Only if these conditions are fulfilled, is the realization of the basic advantages of modernization by comparison with other forms of the reproduction of fixed production possible. *At the present time,*

*because of the dissipation of capital investments, the actual periods of the reconstruction and technical reequipment, as a rule, exceed, and rather substantially, the duration of the construction of new and the expansion of existing enterprises. This sharply reduces the expediency of this form of the reproduction of fixed production capital.* But you see, modernization, in contrast to new construction and expansion is aimed not so much at the increase of capacities as at the reequipping of production at a new technical level, the elimination of bottlenecks, moreover in the shortest time periods. But when reconstruction lasts a long time, due to the inadequate provision of construction projects with the necessary resources, the new technologies and equipment with which the enterprises are equipped, grow obsolete before its completion. In these conditions, the necessary removal and renovation of basic production capital do not take place, and the recovery periods for capital investments stretch out excessively.

Such attention on our part to the problem of the *dissipation of investment resources* is not accidental, since the transition of enterprises to full cost accounting and self-financing increases the probability of its intensification. The chief reason for the dissipation is the "swelling" of the of construction and the uncontrolled inclusion of a growing number of construction projects in the plans. The present level of the concentration of capital investments, at which the realization of the new course of investment policy begins, did not by any means take shape during the last 2 years, but during a lengthy period, in the course of which an extremely strict procedure for the inclusion of new construction projects in the plans was in effect. In the past the independence of enterprises (associations) and their resource potential in this sphere were limited. In the new conditions the situation changes in a cardinal manner. Significant independence is appearing at the enterprises and the financial possibilities for the realization of production modernization are increasing (including the use of long-term credit). All of this is being fortified by the new procedure of the material-technical provision of non-centralized capital investments and the transition to wholesale trade in the means of production. But thereby the potential possibility is created of weakening the control over the dynamic of the number of construction projects built simultaneously, and, consequently, of a still greater dissipation of investment resources with all the resulting consequences.

It is possible to avert such a situation through a thorough restructuring of the centralized planning capital construction and an effective strengthening of its role. The balance of the plan is a necessary condition and a prerequisite for economic independence and the accelerated renovation not only of the production apparatus, but also the entire system of economic relations. At the present time, the process of developing the plan of capital investments, both in the sectoral and in the territorial aspects does not fully guarantee the necessary

balance between the capital investment limits being allotted, their normative volumes and the capacities of the construction and installation organizations.

The imbalance in capital construction and the dissipation of capital investments were called forth, in our view, by the conversion of the annual plan into a basic instrument of the planning agency and by the imperfection of the organization and methods of its elaboration, and by the unwarranted depreciation of the role of the five-year plan. As is shown by an analysis of the organization of the annual plan on the basis of the existing methods of the elaboration of the consolidated and sectoral capital investment plans, it is impossible, within its limits, to take into account all of the far-reaching consequences of the decisions that are being taken. The inclusion of a new construction project in the current plan, even provided that it is provided with capital investments at the level of the normative, leads to the fact that already in the next year, in becoming a carry-over project, it receives funds significantly less than the standard level. The guarantee of the limit of construction and installation work turns out to be lower still.

This technology of planning, in the final analysis, also gives rise to the so-called "expense mechanism" in construction, since it gives free range to choose from the large number of construction projects included in the plan those whose construction is advantageous to the contractor. This selection frequently does not coincide with the national economic priorities in the sphere of modernization measures, which has a significant effect on the efficiency of capital investments. Consequently, without the restructuring of the construction planning agency, it is impossible to aim the economic mechanism at the acceleration of the investment cycle. The enormous funds that are being directed toward the modernization existing production can yield the proper return only provided that the dissipation of investment resources is overcome and that they are concentrated on priority projects. This problem cannot be fully solved through the forces of the individual ministries and departments. The concentration of capital investments is the sphere of planning activity in which it is especially important to carry out centralism and to fully utilize the advantages of centralized planning, combining them with the intensification of the interest of clients and contract construction organizations in the acceleration in the acceleration of the introduction of finished capacities and projects.

The solution of this task is possible only within the framework of the five-year plan. Its chief components are (centralized and decentralized) capital investment limits that are stable for the five-year plan for ministries, departments, and the Councils of Ministers of the union republics, with indication of the maximum share of expenditures for new construction, the limits of construction and installation work (including from a territorial aspect), and stable lists and title lists of construction projects (including modernized ones) that are fully

provided with capital investments and construction capacities according to the norms. The sectoral program of construction should be developed proceeding from the allotted limits and the dynamics of the centralized and non-centralized sources of capital investment financing envisaged in the five-year plan jointly with the contractors, and the modernization projects presented by the enterprises. In so doing, the ministry will determine which enterprises will get the opportunity of carrying out a comprehensive modernization of production in the forthcoming five-year plan and will secure the concentration of resources on the realization of the selected projects, not dissipating them on numerous projects. Taking into account the territorial factor (the distribution of construction capacities), interdepartmental cooperation in this sphere is expedient.

Such an approach presupposes the determination of the *order of priority of the realization of the modernization of enterprises in the course of the forthcoming and subsequent five-year plans*, proceeding from intra-sectoral criteria of efficiency, current and long-term tasks of the development of the sector (union republic). It goes without saying, in this case the enterprises turn out to be in unequal position from the standpoint of the current possibilities of modernization. But there is no alternative to it, with the exception of one, which is connected with the dissipation of capital investments and contract capacities.

The proposed approach, in our view, leaves a place for all forms of self-repayment, cost accounting interest, the use of progressive forms of the organization of material-technical supply, etc. First of all, the principles of the formation of the cost accounting funds of the enterprises remain unchanged. Secondly, the indicated limitations do not extend to housing, cultural-community construction, and the social development of collectives, for them all associations and enterprises retain equal rights and possibilities. Finally, the production development funds can temporarily be used as sources for crediting other enterprises that are in the process of modernization, can be accumulated in bank accounts, can be temporarily transferred to local Soviets, or be directed toward housing and consumer construction.

It seems necessary to pose the question about the introduction of a number of changes in the practice of planning, organization, and the economic regulation of measures connected with the modernization of existing production. One of the most important tasks in this sphere is the reconsideration of the economic conditions of the interaction of the clients with the construction and installation organizations. Its significance will increase in the long run. This is called forth by the fact that, given the projected dimensions, the orientation toward the realization of modernization primarily through economic methods is unrealistic. *At the present time, neither the planning nor the construction and installation organizations are interested in the fulfillment of the orders of*

*enterprises that are carrying out technical reequipment and reconstruction.* The efficient execution of that type of work is prevented also by the absence of the corresponding organization of contract activity and the requisite material-technical base. It is evident that the construction and installation work during modernization will have to be carried out through the forces not of general construction, but specialized links that are equipped with the corresponding machines and mechanisms. As far as the economic conditions themselves are concerned, which regulate the relations of the enterprises being reconstructed, the planners and contractors, for a substantial increase of interest in the fulfillment of this work, it would be expedient to go over to the utilization of *estimated contract prices and simultaneously to establish norms differentiated by sector that limit the share of expenditures for construction and installation and planning and prospecting work in capital investments being directed into modernization.*

The creation of the prerequisites for improving the administration of the modernization of the production apparatus is connected, first of all, with a partial change of the organizational structure of construction production and the functions and specialization of its construction and installation subdivisions. What is required is the effective combination of the contract and economic method of the realization of modernized construction. There is no doubt that, with the development of self-financing, the enterprises will be interested in the formation, in their own structure, of stable construction units of the necessary capacity, specializing in the execution of work on the reconstruction of production. But, obviously, their creation is expedient only in large enterprises, in which large volumes of capital investments must be assimilated and modernization must be carried out practically continuously (from the aspect of individual shops, sectors, etc.). At the same time, the formation of analogous subdivisions in medium and small enterprises would lead to the dissipation of construction capacities and would substantially complicate the organization of modernized construction. To serve such enterprises, in our view, specialized mobile construction and installation organizations of sectoral or territorial subordination should be created.

*To improve the supply of equipment and construction materials, it is necessary to go over to a 2-year cycle of current construction planning.<sup>2</sup>* In the present-day conditions, the individual functions of current planning (the elaboration of the plans and estimates, the financing plans, the placing of orders for equipment and materials, engineering preparation, etc.) are unnecessarily strictly coordinated in time, which inevitably worsens the quality of their fulfillment, creates an enormous short-term load on the planning and supply organs, and in the final analysis lowers the reality of the capital construction plans. The increase of the planning horizon in this sphere will make it possible to increase the validity of the decisions being taken and to improve the coordination

of the work of the enterprises and organizations of the investment complex and the organs of administration. In addition, this will create additional possibilities for the maneuver of material and financial resources and the operative amplification of the planning goals.

On the whole, the course for the increase of the enterprises' own and borrowed investment funds inevitably requires a corresponding adaptation of price policy and the organization of a market in production equipment, and this, in its turn, will make it possible to repudiate, in a shorter period, the obsolete system of the establishment of a quota for the output of production and technical designation with all the shortcomings inherent in it.

**Footnotes**

1. In what follows we will understand modernization to mean the kind of orientation of investments which guarantees the replacement of assets being retired on a new technical basis, i. e., their direction into reconstruction and technical reequipment of production.

2. There have been such attempts already. For example, the Orlov "nepreryvka" [continuously functioning work unit].

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8970

## CIVIL AVIATION

### Minister Reports 1987 Results, 1988 Tasks 18290087 Moscow VOZDUSHNYY TRANSPORT in Russian 25 Feb 88 pp 1-2

[Report on address by USSR Minister of Civil Aviation A. N. Volkov at meeting of the ministry's collegium and the presidium of the Aviation Workers Trade Union Central Committee, under the rubric "Toward the 19th All-Union Conference of the CPSU": "Have the Knowledge, Think, and Act"; first six paragraphs are editorial introduction]

[Text] This was the essence of the exchange of views among managers and specialists at a joint meeting of the MGA [Ministry of Civil Aviation] collegium and the presidium of the Aviation Workers Trade Union Central Committee.

The subject "Results of the sector's work in 1987 and organizational work to carry out the tasks for 1988 under the new conditions of economic operation" was discussed in the collegium. Minister of Civil Aviation A. N. Volkov delivered a report.

It was noted that, in carrying out the decisions of the 27th party congress and the January and June (1987) Plenums of the CPSU Central Committee, civil aviation workers had provided for fulfillment of the state plan for economic and social development of the sector and the socialist pledges made in the year of the 70th anniversary of the Great October Socialist Revolution. Transportation was provided for 119 million passengers and 3.2 million tons of cargo and mail, and 96.5 million hectares of agricultural land and forests were treated and processed. The proportionate consumption of kerosene was reduced by 1.3 percent.

Collectives of the Belorussian, Komi and Lithuanian Administrations, the Domodedovo Production Association, and the "Aviaremont" [Aviation Equipment Repair Industrial Association], which were operating under the new economic operation conditions in 1987, overfulfilled their plan targets. Combined operations were carried out to prepare civil aviation enterprises for the shift to full cost accounting and self-financing. Basic normative documents have been worked out and the necessary conditions have been established for implementation of the Law on the State Enterprise.

An increase in the level of flight safety has become apparent as a result of additional measures to improve the organization of flying work, the quality of maintenance and repair of aviation equipment, and ground support for flights.

At the same time, shortcomings have been noted in civil aviation activity. A discussion on specific ways to eliminate them and the prospects and tasks for further

development of the sector was held at the meeting, which was addressed by A. N. Soshnikov, deputy chief of a department of the CPSU Central Committee.

Analyzing the results of the sector's work in the past year, Minister of Civil Aviation A. N. Volkov noted that the sector's development was proceeding at a faster pace in comparison with the five-year plan. The entire increase in work volume was achieved through improved labor productivity. The efficiency indicators of operational activity were increased for the first time in the past 6 years. Preparation for work under the new economic operation conditions has been carried out.

At the same time, a number of tasks were not resolved successfully. Thus, requirements for aviation work and transportation are not being met fully with high quality, as before. According to the Goskomstat [State Committee for Statistics], every fifth aircraft did not arrive at its destination on schedule. It is no coincidence that the quality of transportation service decreased and the number of complaints did not.

The comprehensive special-purpose program to improve the organization of transportation and raise the level of passenger service on the ground and in flight, which was adopted in 1986, is not being carried out in a number of administrations and has not been developed by taking local conditions into account. Most administrations have confined themselves to the development of duty measures without specifically defining the basic directions for improving transportation and the quality of service and the ways to implement them. Supervision of performance by the GUARP [Aviation Work and Transport Operations Main Administration] is poor.

The shift to the new economic operation conditions has brought to light the extremely negative tendency to reduce the number of workers associated with passenger service, which has led to an increase in the number of complaints. This situation is intolerable.

Then the speaker dwelled on flight safety problems. He noted that the level of flight safety had risen compared with 1986 as the result of steps that had been taken. At the same time, the drastic change that is necessary to ensure flight safety did not take place. This is explained by the fact that formalism is permitted in the activity of flight command personnel. Unscrupulousness is also observed in the selection and training of crews for various types of operations. There is no uncompromising struggle against the violators of flight rules. The most important problems of organizing interaction in a crew are not being resolved. The procedure for making decisions and permitting cockpit personnel to fly has not been worked out properly. As the result of laxity in monitoring the quality of flight information, the effectiveness of preventive and methodical work in aviation enterprises has declined. The GlavULS [Flight Service Main Administration] is not coordinating the research of scientific subunits adequately to improve flying activity.

The problem of training cockpit personnel for flights under extreme conditions and with equipment failures is being resolved slowly. In the drive to economize aviation fuel, airfield exercises in special flight situations which cannot be duplicated in simulators have been reduced significantly to the detriment of flight safety.

The steps taken to improve UVD [air traffic control] also have proved to be inadequate. As before, the procedure for interaction where controller personnel are working on shifts is being violated, the level of controllers' professional training is low, supervision by command and management personnel is poor, and their exactingness is inadequate. The optimization of airspace in terminal areas to separate approach and departure corridors is intolerably slow.

There has been no substantial improvement in the quality of aircraft maintenance and repair, which cannot help but have an adverse effect on flight safety. The basic reasons are the low level of technological discipline and the inadequate exactingness and quality of work by technical control departments.

There continue to be collisions on the ground between aircraft and transport facilities. The number of aircraft accidents because of malfunctioning radio aids has increased.

The Kazakh, Uzbek, East Siberian, Ukrainian, Krasnoyarsk, North Caucasus, Yakutsk, and Belorussian Administrations and the Central Regions Administration of Civil Aviation have the most unsatisfactory flight safety records.

Serious restructuring of thinking, a change to the new methods of management, improvement in the style of work, and mobilization of collectives to improve the quality of flights and their organization and support are necessary.

The June 1987 Plenum of the CPSU Central Committee, the minister continued, established the basic principles for restructuring sectorial administration and measures to fundamentally improve the activity of ministries and their place and role in the system for managing the national economy. But the restructuring of our ministry's work is unacceptably slow. Let us take scientific and technical progress in the sector. We cannot help but note certain improvements. But they are obviously not enough. The level of production process mechanization is still intolerably low. The reluctance of aviation enterprises to enter into direct contracts with scientists is a serious impediment to the development of technical progress. At present, only 4 percent of the scientific developments have been paid for by enterprises.

The status of capital construction is a source of particular concern. True, capital investments have been concentrated on the most important construction projects and

funds have been allocated in accordance with the duration of construction. However, there has been no decisive improvement in assimilating capital investments for the sector and a number of projects. The 1987 capital construction plan for production projects has not been fulfilled in accordance with all indicators. This is especially intolerable when the provision of production capacities for aviation enterprises is extremely inadequate. Year after year, the same airports in Omsk, Karaganda, and Komsomolsk-on-Amur, the passenger service complex and the building for the Main Computer Center in Moscow, and the sanatorium in the Crimea are cited as projects that have not been put into operation.

Two-thirds of the administrations and production associations have not fulfilled the targets for construction and installation work. The status of capital construction in the Far East, West Siberian, Magadan, North Caucasus, and Ukrainian Administrations, the TsUMVS [International Air Services Central Administration] and "Aviaremont" is extremely unsatisfactory.

The main reason for the lag is unsatisfactory performance by the Capital Construction Administration and the GUZSANT [Air and Ground Production Equipment Orders Main Administration] in providing construction projects with the necessary materials, equipment, and planning estimates.

Managers are particularly responsible for failure to carry out the program for development in the social area. The chiefs of the UGATs [Central Regions Administration of Civil Aviation], the Azerbaijan, Arkhangelsk, and West Siberian Administrations and a number of others have not taken effective steps to overcome the lag in development in the social area. Political departments and trade union organs are maintaining a passive position in this work. Despite the critical nature of the housing problem, a number of administrations do not have specific programs for providing each family with a separate apartment by the year 2000. Cooperative construction is being developed poorly. The experience of the Lvov Aviation Enterprise in building housing with its own resources has not been widely disseminated thus far. Our managers are making little use of assistance from local soviet and party organs.

Neglect of problems in the social area have a detrimental effect on flight safety as well. Construction of preventive clinics for flight personnel in Khabarovsk, Tyumen, Irkutsk, Petropavlovsk-Kamchatskiy, Vladivostok, and a number of other principal airports has been omitted from the plan for three five-year plan periods. Moreover, the attitude of aviation enterprise managers toward the organization of preflight rest for competitive crews has become markedly worse with the sector's shift to cost accounting. But mercantilism is out of place here and cannot be placed above flight safety.

## TRANSPORTATION

Taking into account the fact that the transition to the new conditions of economic operation has not been completed yet, the speaker dwelled on this in detail. Experience attests to the fact that implementation of wage reform is impossible without accelerating the pace of economic growth and without improving production activity. Nevertheless, aviation enterprises in a number of administrations have not been seeking out reserves properly or introducing mechanized and automated facilities for production processes, and they are devoting little effort to increasing the level of norm setting and improving the structure of administration. Economic incentive is being poorly utilized. The provisions for payment of bonuses are often worked out formally and do not reflect a direct relationship between the bonuses and work results.

With the shift to new wage and salary rates, all this work must be carried out in an atmosphere of complete glasnost in strict conformity with labor legislation and the Law of the USSR on the State Enterprise, on a democratic basis with active participation by labor collectives.

It would be incorrect to assume that the new economic mechanism has been completely worked out. The system of cost accounting relationships among enterprises needs to be significantly improved and internal production cost accounting is not being introduced adequately. The principles for establishing economic norms evoke serious criticism. The point of the new economic mechanism is coming through to specific executives extremely slowly.

The personnel problem and the condition of labor discipline held an important position in A. N. Volkov's report. In particular, it was noted that restructuring of personnel work is proceeding slowly at present, the process of democratization is meeting with opposition here and there, and glasnost is lacking in personnel selection and placement. Appreciable reinforcement of discipline has not taken place on the whole, in spite of certain improvements. The number of violations of regulatory documents related to flying and air traffic control has increased in 15 administrations. The approach in rooting out drunkenness, alcoholism and drug addiction is not aggressive. Command and supervisory personnel, political departments, and party and public organizations still have not done everything required of them here.

On the sector's tasks in 1988. The principal feature of the year is that all administrations, enterprises and organizations have made the transition to work under the conditions of full cost accounting and self-financing. Application of the Law on the State Enterprise is being extended to them. Operational activity was put on a two-shift system beginning in January this year. The administrations of civil aviation have acquired the status

of production associations. The composition of administrations has been approved, and the majority of associated aviation detachments have become structural units in the process.

The draft of the General Plan for Administration of the Sector calls for the number of units of an administration to be reduced to nearly one-fourth as many. Regardless of the territorial location of structural units and the independent enterprises which form part of it, an administration functions as a single economic-production complex and operates on the basis of a single plan and balance. The state order, limits and resources, and economic indicators and norms have been reduced to enterprises. It is significant that no higher organ (whether the ministry or an administration) has the right to bring planned figures, economic norms and limits to enterprises that are above the list that has been approved.

A second feature is that all planned figures given to enterprises are not directive in nature and should not be binding on a labor collective in working out plans.

This year, the state order for passenger turnover has to be fulfilled for 207.5 billion passenger-kilometers, an increase of 1.6 percent over the past year. In terms of cost, the state order makes up 59 percent of the sector's overall volume of operations and services.

The passenger turnover calls for a greater increase in the volume of operations with Il-86, Il-62M, and Tu-154 aircraft. Increased service has been stipulated primarily for regions of the Far North, Siberia and the Far East. The increased operations of a significant number of aviation enterprises should be provided for only by the strictest economy and more efficient use of aviation fuel and by improving the composition of the fleet.

The work conducted by the ministry in 1987 has provided for financial stability for the sector's associations, enterprises and organizations in the transition to the new conditions of economic operation. The objective is to maintain this stability.

In 1987, a number of enterprises became profitable not by improving production organization, reinforcing discipline, and reducing administrative staffing, but because of revenue rates which were higher than the sectorial average. This applies to the Ukrainian, Kazakh, and Central Regions Administrations and a number of others.

Elimination of such a hidden subsidy and tentative evaluation of enterprises' activity where a system is worked out for adding charges to revenues inevitably turns them into unprofitable enterprises. So a thorough, nonstandard analysis of production and a search for reserves are needed.

We have to rely on labor collectives first of all to resolve these problems. But a result will be achieved from this if the closest attention is devoted to social problems. We have acquired authorization to channel 70 percent of the above-plan profit in the second half of 1987 to the social development fund. There is also the matter of switching over a substantial proportion of capital investments from production to nonproduction construction. This amounts to millions of rubles which will go toward construction of housing and projects for social, cultural and everyday service purposes.

Along with this, the shift to new wage rates and salaries is of greatest importance. Restructuring of wage organization has aggravated the serious shortcomings of the system in effect for evaluating and payment of aviation workers, primarily the cockpit personnel. They are not interested in performing a specific amount of work with fewer hours of flight time. The fact that the wages for cockpit personnel, their vacations and length of service for retirement depend on hours in flight inevitably leads to the pursuit of flight time at any cost, to the detriment of economy and common sense. Fundamentally new criteria must be worked out for the evaluation and payment of cockpit personnel and flight commanders.

The requirement for aviation specialists, including cockpit personnel, which has been substantiated is becoming particularly critical. The introduction of contract relationships between educational institutions and enterprises, leaving out the ministry, will be required here, with a salary (and a very substantial one) for each specialist from the funds of aviation enterprises.

Our sector has been operating for nearly 2 months under the new economic operation conditions, A. N. Volkov continued. Certain problems have already come to light which will make it difficult to restructure the economy if they are not resolved.

First of all, the existing system for generating income does not provide an unequivocal answer to the principal question—whether one enterprise or another is unprofitable or not. And while the system still functions more or less with respect to an administration, it must be fundamentally restructured with respect to enterprises, and especially its structural units.

Secondly, I would like to mention the cooperative method of operating aircraft. Its advantages are obvious. This method will also be extended further. It has not been ruled out that we may generally discontinue the attachment of aircraft to aviation enterprises in the future. Indeed, the Armenian and Urals Administrations, for example, which are now operating Il-86 aircraft from the Vnukovo Association and the Leningrad Administration, respectively, under a lease arrangement, do not want to relinquish part of their revenues to the aircraft owners, although the ministry has suggested a procedure for apportioning the incomes. This is the way

the matter stands: if this procedure is not suitable, use your own, and come to an agreement with each other. But work with this method should not be discontinued.

Further, I would remind you that the new economic mechanism is being introduced under the conditions of the five-year plan that was adopted, that is, with the structure of expenditures that has taken shape. It does not provide for the mutual accounting of any kinds of aircraft technical and commercial maintenance. Naturally, economic norms also correspond to this. For this reason, the point of enterprises presenting accounts to each other is incomprehensible. No one gains anything from this. By the middle of this year, a new system for relations among enterprises will be developed which corresponds to the requirements of full cost accounting.

We must have further consultations on receipts for ordered flights. After all, the proposals for a change in the current system affect the interests of those administrations where ordered flights take place.

Establishment of an internal economic mechanism which takes into full account the requirements and juridical guarantees of the Law on the State Enterprise—this is the crux of economic work. It is important to organize the work so that the principle of "the earnability of capital" reaches every aviation worker and every labor collective.

It is necessary to mention the connection between the results of 1987 and restructuring in the sector and aviation workers' moral and political frame of mind. The political organs have influenced the development of this atmosphere. The Political Administration of Civil Aviation and enterprises' political departments have been reinforced organizationally and have been armed with progressive substance and work methods.

The minister made a number of observations on the reinforcement of party and political work, especially with regard to the unity of actions by management personnel, political organs, and party organizations.

First, on strengthening the ties between managers and the collectives. Experience shows that where close contact does not exist between managers and collectives, unhealthy manifestations such as the ones that existed in the UGATs, the Domodedovo Production Association, and the TsUMVS make their appearance. The practice of extensive contact with collectives and direct and frank discussions on the fundamental problems of aviation production must be reinforced. Living in the heart of the collectives, being aware of everything, influencing everything, mobilizing and uniting the activists, and through them all the aviation workers—this is an indispensable condition for successful activity.

Second, on the democratization of management activity and increasing its efficiency. The party's requirements for a decisive break with administrative methods of

## TRANSPORTATION

leadership are well known. But this process still presents difficulty for us. We are still far from the point where all important decisions are discussed in the collectives, and especially taken up by them. At the same time, I would like to particularly emphasize that democratization does not assume freedom with respect to the implementation of decisions that have been adopted. A decision that has been worked out and adopted democratically should be implemented without fail.

Third, on increased efforts in restructuring personnel work. We have managed to make some positive improvements in this direction. At the same time, a considerable number of managers still have not brought about fundamental changes in thinking and work style in the spirit of the decisions of the January (1987) Plenum of the CPSU Central Committee. Attempts to select and assign personnel in accordance with the principles condemned by the party have not been stopped yet. Guided by the opinion of collectives, party and public organizations, and their own analysis, communist managers must establish an evaluation of persons and their relationship to restructuring. A personnel reserve must be developed and decisions made on possible personnel changes on this basis with broad glasnost.

Fourth, on combining efforts to ensure flight safety and reinforce discipline. This is our most important task, and all organizational, political, methodical, and educational work should be concentrated on it. The results of it could be more substantial if we managed to completely avoid cases of slackness in vigilance and professional carelessness in the organization, management and support of flight activity, and in training aviation workers. Command and management personnel have not familiarized themselves with the key areas, the major issues and sore points everywhere. Certain managers are not showing thoughtfulness here, and are carried away by large-scale measures without taking into account the specific situation, the nature of errors committed, and the preconditions and violations of flying rules. This applies chiefly to the Belorussian, Ukrainian, East Siberian, Turkmen, and Central Regions Administrations.

Fifth, on the personal participation of communist managers in party and political work. The processes of glasnost and democratization objectively require competent leadership by command personnel and party organizations. For this, they themselves must work toward a higher order and lead in the resolution of complex and important problems. This is why every communist manager of any unit has the obligation to take an active part in party and political work and to give an example of a conscientious and creative attitude toward party responsibilities.

Personal appearances by managers in party and labor collectives, the ability to consult with them from positions based on principle, to continuously be informed of the results of their activity, especially in the social area, as well as in connection with tasks that are difficult to resolve, are important now.

Now as never before, the manager's principal method with party and labor collectives should be one of persuasion and well-reasoned arguments, not lectures and reprimands in particular.

Command personnel must clearly represent unity in organizational and educational activities and put it into practice, and they must engage in joint work harmoniously with political organs, deputy commanders for political affairs, and party organizations. It is necessary to revitalize the participation by managers at all levels in ideological work and to extend glasnost and criticism in it. It is important to carry this out not only against those who impede restructuring, but against those who are indifferent, those who do not see and do not develop the progressive shoots, of which there are many in civil aviation.

The restructuring of thinking and consciousness cannot be successful without sound economic and professional know-how. On the whole, compulsory economic education is proceeding in an organized manner in the sector. However, we have not managed to free ourselves from elements of isolation from the tasks and problems facing the collectives.

Restructuring is gathering strength in civil aviation. The past year was a distinct landmark on this path. But the field of operations ahead is even larger. The work we are carrying out today and its results are an exacting test of our plans, approaches and methods in implementing the party's social and economic policy.

8936

## RAIL SYSTEMS

**Transportation Construction 1988 Tasks Outlined**  
*18290085 Moscow GUDOK in Russian*  
*27 Jan 88 pp 1-2*

[“Build More Rapidly and Carefully”—GUDOK headline; first paragraph is GUDOK introduction]

[Text] A report from an expanded session of the Ministry of Transport Construction Collegium and the presidiums of the Central Committee of the Rail Transport Workers and Transport Construction Trade Union and the Central Committee of the Automotive Transport and Highway Workers Trade Union.

V. A. Brezhnev, minister of transport construction, presented a report on the ministry's tasks in insuring the fulfillment of the 1988 planned targets considering the operation of organizations and enterprises under the conditions of complete cost accounting and self-financing.

It was pointed out in the report and speeches that the branch's construction organizations and central staff operated last year while preparing for the introduction of

the new economic mechanism. A series of measures was carried out for the training of cadre, for the shift to a collective contract and to the paying for labor in accordance with new tariff rates and position salaries, and for normalizing the branch's financial condition. On 1 January of this year, every organization and enterprise in the ministry shifted to complete cost accounting and self-financing.

In 1987, the transport builders fulfilled the target in the state plan for the commissioning of the main production capacities — new railroad lines, secondary routes, electrified sections, subways, highways, berths, and large bridges. The quotas for commissioning housing, preschool establishments, schools, vocational technical schools, hospitals, and polyclinics were overfulfilled. The plan for construction and assembly work was realized especially in machine building, fuel and energy, metallurgical, and agroindustrial complexes; for the Ministry of Railways and the Ministry of the Maritime Fleet; and for their own capital construction. The established quotas for increasing labor productivity and for reducing production costs in construction and installation work and the profit plan were fulfilled.

The collectives of the Yugozaptransstroy [Southwest Transport Construction], Sredaztransstroy [Central Asian Transport Construction], Ufimdorstroy [Ufimskiy Highway Construction], Kiev dorstroy [Kiev Highway Construction], Sevzaptransstroy [Northwest Transport Construction], Mostostroy No 4 [Bridge Construction No 4], Transsignalstroy [Transport Signalling Construction], Tsentrostroymekhanizatsiya [Central Mechanization Construction], and Kazakhtranstekhmontazh [Kazakhstan Transport Equipment Installation] trusts; the Construction Administration of the Lenmetrostroy [Leningrad Subway Construction Trust]; and the Soyuzmetrospetsstroy [All-Union Special Subway Construction] Administration were the leaders in socialist competition.

It was emphasized in the report and speeches that the fulfillment of the critical tasks, which have been set for 1988, requires the carrying out of many practical measures to improve production and financial activity and to eliminate the shortcomings that existed last year. You see, approximately one-third of the trusts are not coping with the plan and 11 trusts and construction administrations worked unprofitably. Many organizations did not reach the level of profitability required for self-financing. Basically, these are the organizations that are working on Ministry of Railways construction sites. How will they solve the tasks for expanding rail transport? Branch science, the economic services and the main administrations must immediately look into this situation, find a way out from the situation that has been created, and provide the necessary recommendations to the economic units.

We did not manage to completely solve the assigned task of bringing the commissioning periods of the main capacities nearer to 1 October. The electrification of the

Sennaya-Saratov-Rtishchevo and Mogocha-Skovordino sections and the construction of the Chara-Tynda line lagged behind in this connection.

Individual directors are still underestimating the exceptional importance of expanding their own production base and that is why the plan for this work is being realized by only 95 percent. Capacities at the Nizhneudinskaya Production Base, the Amazarskiy Wood Processing Combine and the Steel Castings Shop in Tayshet have not been put into operation.

The 1988 plan has a number of distinctive features. In particular, the norm construction periods are being sustained. In connection with this, the percentage of work at underway projects has been increased and the amounts of reconstruction and technical reequipping of existing enterprises and the construction of projects in the social area have grown. The commissioning of the overwhelming majority of projects is foreseen during the first three quarters. In particular, it will be necessary to insure the commissioning of 547 kilometers of new lines and almost 500 kilometers of secondary track, to electrify 1,255 kilometers, and to hand over more than 1.7 million square meters of housing.

It was emphasized that it is now very important to begin the year correctly — to set sufficient tempos in the first quarter. Under the conditions of complete cost accounting, the understating of the first quarter plan will lead to financial bankruptcy. The attention of the construction trust and administration directors was especially directed toward the inadmissibility of understating the rates for fulfilling the plan for the Ministry of Railways and for their own construction during the first and second quarters. The importance of coordinating the work to implement construction plans for housing and other social projects with local councils so as to insure their timely commissioning, was pointed out.

In connection with the change this year in material and technical support conditions, the attention of the construction trust and administration directors was directed toward the necessity of concluding contracts with suppliers in a short time. Contracts for the delivery of crushed stone have still not been finally concluded with Ministry of Railways enterprises; for the delivery of last year's rails — with the railroads; and special switches have not been manufactured.

The task of taking steps to shift main production to two-shift working conditions and to achieve an efficient use of the highly productive equipment in the near future, has been assigned to trust directors that have industrial enterprises.

Consumer goods production tasks are growing significantly. In order to fulfill them, it is necessary to establish special production facilities, shops and cooperatives and to study the demands of the population more thoroughly. Higher (in comparison with the five-year plan)

quotas for providing services, which are paid for, have been established for 1988. However, a number of trusts still do not have a complex program for their expansion. It is necessary to use the experience of the Glavtunnel-metrostroy [Tunnels and Subway Construction Main Administration], which established a commercial center in Odintsovo, more widely.

This year, it is necessary to increase significantly the production of meat, milk and other products on subsidiary farms. Good experience in organizing the work on subsidiary farms exists in the Pavlodartransstroy [Pavlodar Transport Construction], Kuybyshevskstroy [Kuybyshevsk], and Mostostroy No 9 trusts which either achieved the level of the five-year plan or came close to it. At the same time, the required base for solving the assigned tasks has still not been established in many trusts, especially the Moselektrotyagstroy [Moscow Electric Traction Construction], Dalmorgidrostroy [Far East Maritime Hydrological Construction], and Krasnoyarsktransstroy [Krasnoyarsk Transport Construction].

One of the most important problems is a radical improvement in using and saving material resources. It was pointed out that concrete steps to save resources by introducing organizational and technical measures and improving technology and the proprietary attitude toward allocated resources must become the basis for balancing the plan.

Under the new management conditions, the annual plans for incorporating new equipment are being developed and approved by the organizations themselves. As last year's results showed, some organizations are understating the volumes for incorporating new equipment contrary to the control figures that have been set by the five-year plan. The percentage of advanced types of construction and installation operations in Glavbamsstroy [Baykal-Amur Mainline Construction Main Administration] organizations is only 18 percent; and the Urals and Siberia main administration — 16 percent. The directors of these organizations must understand that it is possible to realize the assigned tasks for increasing labor productivity and for reducing the material-intensiveness of production only by accelerating scientific and technical progress.

Questions on increasing the construction quality of housing and other social projects require serious attention in connection with the introduction of state acceptance for these projects on 1 January in 20 republic, kray and oblast centers. This also defines the high requirements on enterprise products that are being delivered for the construction of projects with a social significance.

The work under the new conditions will greatly depend on the condition of design and cost estimate work. The quality in developing projects still does not satisfy the high requirements of scientific and technical progress. There are especially many shortcomings in the Gipro-promtransstroy [State Institute for Designing Industrial

and Transport Construction Enterprises], which is designing installations for its own production base. High quality in designing projects for a construction organization can be achieved only by the coordinated and joint efforts of design institutes and contract construction organizations. However, they are still not paying the necessary attention to this.

Criticism has been expressed addressed to workers in the Ministry of Railways and the USSR Gosstroy, who "cut out" of them expenditures without sufficient justification during the examination of projects and cost estimates.

It was pointed out that the review of obsolete construction norms and rules has been dragged out and that it is necessary to accelerate the development of price-lists for transport construction consolidated meters.

For the normal operation of organizations and enterprises under the new conditions, it is necessary to take additional steps to improve their financial condition. Last year, a large customer debt for work performed was formed and many construction trusts and administrations accumulated superfluous spare parts, inventories, structures, special clothing, and other material valuables. "Immobilized" reserves valued at two million rubles accumulated in the Kaztransstroy ion] Trust; 2.8 million in the Tbilinnelstroy [Tbilisi Tunnel Construction] Trust; 3.1 million — in Mostostroy Trust No 2; 2.7 million — in the Birobidzhanskiy Plant; and 1.4 million in the Komsomolskiy Plant. Fixed producer goods were not used with sufficient efficiency. It is no longer possible to reconcile oneself to this.

The elimination of nonproductive expenditures and losses, including fines and financial sanctions, is an important task. During the first nine months of last year alone, the Ministry of Transport Construction paid fines for the untimely commissioning of projects totaling 11.7 million rubles. The Sverdlovsktransstroy [Sverdlovsk Transport Construction], Gortransstroy [Gorkiy Transport Construction] and Vossibtransstroy [East Siberian Transport Construction] trusts paid the highest fines. Along with this, many trusts are not using their right to levy fines on negligent customers and suppliers.

It is necessary to make maximum use of the active portion of producer goods. The problem of improving the use of the machine pool, raising the return on investment and reducing expenditures on the maintenance of equipment is acquiring especially important significance. By writing off obsolete equipment, it is necessary to free a portion of the machine operators (approximately 10,000 operators and drivers) who will be used to insure the operation of the main machines in two-three shifts. It is also necessary to expand in every way possible interdepartmental cooperation in repairing machines.

The shift of the organizations and enterprises to the collective contract has had a substantial impact on improving their activity. The economic effectiveness of the collective contract has been confirmed by a majority of trusts. Along with this, certain collectives, in particular the Moselektrotyagstroy, Privilzhtransstroy [Volga Transport Construction, Vossibtransstroy, and Yuzhuraltransstroy [South Urals Transport Construction] trusts, have displayed formalism when shifting to the collective contract. In a number of organizations, it has not been linked with internal production cost accounting and with the savings of material and technical resources.

The check accounting system, which permits production costs to be monitored effectively, is being introduced into construction slowly. Its use creates conditions for involving workers and engineer technical workers and employees in the systematic monitoring of the expenditure of resources and the suppressing of bad management.

Losses of work time are becoming completely inadmissible. During the first six months of last year, they reached 0.78 percent for the Ministry of Transport Construction as a whole. Considering the photographing of the work day, which was done in a number of organizations, losses reached 5.4 percent, that is, seven-fold more.

The condition of anti-alcohol work in individual organizations, where violations of work and labor discipline because of drunkenness are practically not being reduced, evokes serious concern. All necessary measures should be adopted in order to eradicate this disgraceful phenomenon.

An important role in raising production efficiency belongs to the widespread dissemination of progressive experience. However, the construction schools, which are conducted by the All-Union Transport Construction Design and Technological Institute, are still not having the required impact on raising the qualifications of the workers and on the mastery of advanced work methods.

Large tasks face the branch's system for training personnel and improving their qualifications. It is necessary to introduce production and economic training on wider scales.

The initial experience in operating labor collective councils, which have been established in the ministry's subunits, shows that their activity is still imperfect. Many of them are displaying activity only during the distribution of the wage fund. In individual cases, their positions on certain matters do not coincide with overall branch and state interests. It is necessary to do much and to work seriously in this direction.

It is necessary to intensify in every way possible the work in appointing cadre and to carry out real measures to improve housing and domestic conditions in each collective. The failure to fulfill the housing construction quota is inadmissible!

The speeches during the session of the Collegium pointed out the importance of strengthening coordination between general contractors and customers and of disseminating the positive experience in cooperation between the builders and the railroad workers on the October, Belorussian, Alma-Ata, and other railroads. This will contribute to accelerating the solution of questions that are connected with the assignment of the work frontage, the delivery of equipment, the transmittal of production forms and records, and the initiation of financing.

At the present time, the competition to greet the 19th All-Union Party Conference in a fitting manner is being expanded widely in transport construction organizations.

The ministry Collegium and trade union Central Committee presidiums have expressed confidence that the transport builders will greet the opening of the 19th All-Union CPSU Conference with new work successes and will make a fitting contribution the successful fulfillment of the 1988 tasks.

A. G. Melnikov, manager of the CPSU Central Committee Construction Department; L. N. Zarubkin, deputy chairman of USSR Gosstroy; and P. N. Popov, secretary of the Rail Transport and Transport Construction Trade Union Central Committee, spoke during the meeting of the Collegium.

08802

#### New Dispatching Center Begins Operation *18290089a Moscow GUDOK in Russian 25 Feb 88 p 1*

[Report by A. Kapkov under the rubric "Timely Reportage": "A Computer Trial"]

[Text] The Automated Traffic Control Dispatching Center (ADTsU) has begun operation.

Arrows for the ADTsU lead to the second floor of a completed building at the Red Gates. Here it is, the center. The first impression is that it is like the Space Flight Control Center here. Only instead of a panorama of the sky, the huge electronic panel depicts a diagram of the entire railroad network. But in other aspects it is similar: MPS [Ministry of Railways] dispatchers who control the movement of locomotives and railroad cars are arranged in a semicircle around this panel. Each one has two small displays in front of him. The transport workers also have a large colored display on which a picture of the traffic development at the interchanges is depicted in diverse colors.

The work is under way. The data accumulated at line interchanges on the transfer of trains and cars, on the passing of an empty car, and on the "attachment" of locomotive brigades to trains are transmitted to the lines' computer centers and incorporated in their data banks. From there this information gets to the ministry's Main Computer Center by communications channels and appears on the ADTsU panel. Each dispatcher can obtain more detailed information on the displays at his automated work position if he wishes.

Here they are, the potentialities of electronics! It makes it possible to carry on a dialogue with the entire network of lines, as in the song: "from Moscow to the very outskirts." Just how do these engineering wonders behave in the hands of the persons who control the traffic?

Chief Dispatcher P. Kharitonovich was in charge of this shift. He may be called the chief regulator of train traffic on the entire network. It depends on "the chief" what is put on the illuminated board and how he monitors implementation of the traffic plan. All information on this is in his hands, in the complete sense of the word. Simply by using the keyboard on the display he can check the traffic control situation in Kazakhstan, let us say, or in the Far East. When I was there he was checking the train transfers by interchanges.

So here is the opinion of this day's duty chief dispatcher on the ADTsU.

"The equipment is good," he says. "The illuminated board speaks, we may say. See, the bulbs are burning and flashing on it. If they were turned on somewhere it means that everything is not in order, and if they are flashing it means that a situation requires intervention. True, the board still has irregularities. Electronic technicians are adjusting it. And information from a line sometimes comes late, but we need to know in advance, to have a prediction. For this reason, take a look, many dispatchers have paper charts next to the computer, and many often run to a tested instrument—the telephone—as before, not trusting the computer. It's noisy because of this, and the glass partitions don't help..."

**From the comments log:** "9 February, A. Zhabin. Install additional partitions in front of the desk." There is a plus in the completion column. "11 February, Komarov. According to reference 20/27 there is no data output on transit." "Done" is written in the completion column.

Leafing through this log you automatically notice that there were more purely ergonomic requirements than those dealing with electronics at first. It became apparent right away, for example, that those sitting in the last row in front of the board could not see the names of the interchanges very well and that displays, clocks and telephones had to be shifted to one side or the other.

More and more suggestions on how to adjust the ADTsU are coming in now. "The acceptance and release of trains at only 15 interchanges were reflected without error on the graphic panel 16 February," the comments log stated. "There are errors on the others, especially for Krivozerk [sic; possibly "Krivoye Ozero"], Isulkul, Mezdurechensk, and Yuryt..." Inaccurate information is still coming from the lines, and the ADTsU employees are concerned about this.

**The opinion of senior controller-inspector Ye. Grishel:**

"Until accurate information is received from the interchanges, this electronic wonder will remain useless. And why is there no accuracy in the transmission of data? Because today this transmission often depends on "girls" who sit there and do not put information on trains into the computer right away after they have passed, but sometimes on several consists at once. This turns into errors."

"How do you correct the situation?"

"Here is one alternative. We recently called supervisors from the Transbaykal, Far Eastern, and Baykal-Amur lines here to the center. And we called them with the condition: 'Don't come until you have corrected the situation!' And you know, it helped."

A search is under way for ways to include the ADTsU in control of the network more expeditiously. But aren't the specialists in too much of a hurry? After all, it is common knowledge that industrial operation of the center has been set in accordance with the plan for the third quarter of this year. Won't completing it ahead of schedule have an effect on quality?

**The opinion of G. Ivannikov, chief designer of the ADTsU and chief of the Main Computer Center of the Ministry of Railways:**

"No, accelerated introduction of the ADTsU is important both for traffic control and cost accounting in the sector. The entire second quarter will be devoted to refinement of the new technology. The objective of it is to ensure that MPS dispatchers do not record a train position as it has become established, even with a 3-hour delay, but that they organize the traffic. For this the dispatcher-inspector should leave papers with the train position alone. His main concern should be regulating the operation of interchanges, analyzing the predicted train arrivals, and assignment of brigades. A forecast is possible for 4 to 6 hours. When a dispatcher looks ahead, then he will become a real dispatcher!"

But for the present, in spite of the system's extensive capabilities, dispatchers are acquiring machine data output on traffic movement that has taken place. Why should they be oriented toward yesterday?

"The software and hardware are not equal to the occasion yet, of course," Ivannikov continues. "This depends on the development and reliability of the lines' ASU's [automated control systems]. So the ADTsU should become a catalyst for their development. And so that information on the status at interchanges does not depend on the will of operators locally, reporting of the transfer of trains and cars has been organized through the computer in accordance with Form DO-1 today for 98 out of the 156 interchanges. Automation of this operation at the remaining interchanges is a task for the second quarter."

Ivannikov demonstrated all the capabilities of the ADTsU on the display. Before he turned it off he asked: "What other task should we show?" We chose a check on train weight. We "leafed through" the stations on the screen. In Tayshet, 45 tons were lost on a train in the odd-numbered direction and 233 tons were lost in the even-numbered direction. In Mariinsk, 144 tons were underloaded for the odd-numbered traffic flow, and so forth. Consists are departing from here with 55 to 60 cars when the norm is 71 cars. There they are, the opportunities that were missed!

The opportunities for an automated dispatching center are really exceptionally broad. The first steps of the ADTsU attest to this.

8936

**'Price List' for Services Published**  
*18290089b Moscow GUDOK in Russian 4 Mar 88 p 2*

[Unattributed article under the rubric "GUDOK Consultation Column": "A 'Price List' for Our Work"; first two paragraphs and final paragraph are editorial introduction and comment]

[Text] Today, when economic methods of management are coming into force, it is very important to evaluate the cost of every step and every technological operation. This makes it possible to determine in monetary terms, so to speak, the economic expediency of actions that are being taken.

A number of railroads have made an attempt to produce a distinctive inventory of their various operations. We suggest that readers familiarize themselves with one such 'price list,' compiled by specialists of the Southeastern Railroad.

**For each car included in a passenger train which it forms, the railroad receives:**

—170 rubles for a distance of up to 700 kilometers in the firm's train, and 150 rubles in other trains; and

—190 rubles for over 700 kilometers in the firm's train, 170 rubles in other trains, and 100 rubles in reserve consists for the owner railroad.

**For each passenger train prepared at a turnaround point: 170 rubles.**

**Loading and shipment of 1 ton of freight provides the line with an average revenue of: 1 ruble 21 kopecks.**

An increase in loading of 1 percent, in tons, increases the line's receipts from shipments by 934,000 rubles annually.

**An increase in the static load of all cars by 1 ton reduces expenditures by 200,000 rubles annually.**

**Reduction of car layovers:**

—provides a saving of 200,000 rubles annually in operating facilities per hour of freight operations on average for the line; and

—provides a saving of 242,000 rubles annually in operating facilities per 0.1 hour at technical stations on average for the line.

**An increase in the schedule speed of freight trains of 1 kilometer per hour provides a saving of 3.8 million rubles annually in operating facilities on average for the line.**

**One train-hour of layover for a freight train increases operating expenditures by 11 rubles.**

**Keeping 100 freight cars per day above the norm in the operating fleet increases expenditures by 192 rubles per day.**

**One stop of a freight train increases operating expenditures by 4 rubles 20 kopecks.**

**One warning action in a 24-hour period increases expenses on average by 27 rubles 20 kopecks.**

**Increasing the weight of all freight trains by 100 tons saves 3.7 million rubles in operating expenses annually.**

**Maintaining only one additional locomotive increases operating expenses per day by an average:**

—255 rubles for a train locomotive; and

—225 rubles for a switcher.

**The layover of a train locomotive with a brigade for 1 hour increases expenses by 9 rubles 60 kopecks.**

**One unplanned repair of a locomotive increases expenses by 250 rubles.**

**A saving of 1 ton of standard fuel increases the line's profit by 72 rubles.**

**Saving 1,000 kilowatt-hours of electricity increases the line's profit by 16 rubles 70 kopecks.**

**One case of poor workmanship in train work increases operating expenditures on average by 160 rubles.**

**Increasing locomotive productivity by 1 percent reduces operating expenditures by 560,000 rubles annually.**

**The production cost of 10 adjusted ton-kilometers amounts to 2,975 kopecks, including:**

—2,670 kopecks in tariff ton-kilometers; and

—7,368 kopecks in passenger-kilometers.

**A 1-percent decrease in the production cost of transport corresponds to a reduction of operating expenditures of 4.7 million rubles annually.**

**One unoccupied passenger seat in a reserved car reduces the line's receipts by 6 rubles 30 kopecks; in a compartment car receipts are reduced by 7 rubles 41 kopecks.**

Each railroad has its own local conditions, of course, and for that reason, obviously, the cost of technological operations is different. But there is no question about the necessity of calculating receipts and expenditures. And price lists are needed not only for the railroad, but for divisions and the structural subunits. It is no secret that many workers, and often supervisors as well, have no conception of the source of revenue and expenses, and are not aware if a work place is "self-financing" or if the result is zero from the viewpoint of profitability or even operation at a loss. Today, in such an "economy," one can easily go bankrupt and be left without wages. This is why we must know how much each work place costs.

8936

**END**